DESIGN ▪ DEVELOP ▪ DELIVER ▪ DOMINATE

ARMY AL&T

ASC.ARMY.MIL

JULY-SEPTEMBER 2017

TALENT MANAGEMENT

STEM SUPERSTARS

Showing young kids that engineers don't all run trains

CENTER OF THE STORM

Trail bosses grow professionally by managing NIE, JWA events

BUILDING CREDIBILITY

Program managers need to find the right mix of character and action

READ ARMY AL&T MAGAZINE ON THE GO

Army AL&T—**the app**—is now available for iPhone, iPad and Android devices at the iTunes App Store and Google Play.

For writers guidelines and to submit articles, go to:
http://asc.army.mil/web/publications/army-alt-submissions/

To contact the Editorial Office:
Call 703-644-5636/5633

Email:
armyalt@gmail.com

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

Army AL&T magazine (ISSN 0892-8657) is published quarterly by the ASA(ALT). Articles reflect views of the authors and not necessarily official opinion of the Department of the Army. Articles 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.

By Order of the Secretary of the Army:

MARK A. MILLEY
General, United States Army
Chief of Staff

Official:

GERALD B. O'KEEFE
Administrative Assistant to the Secretary of the Army
1714205

DESIGN • DEVELOP • DELIVER • DOMINATE

ARMY AL&T

JULY-SEPTEMBER 2017

FEATURES

FROM THE AAE

ACQUISITION

LOGISTICS

ON THE COVER
Putting the right people, with the right skills, in the right jobs at the right time isn't the work of superheroes. It just seems that way sometimes.

DESIGN ▪ DEVELOP ▪ DELIVER ▪ DOMINATE

ARMY AL&T

JULY-SEPTEMBER 2017

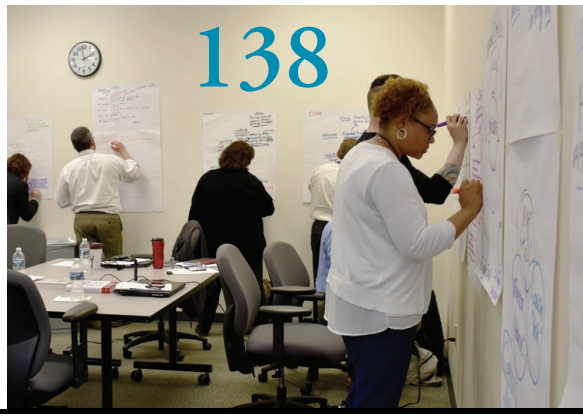
FEATURES

SCIENCE & TECHNOLOGY

CRITICAL THINKING

COMMENTARY

WORKFORCE



ARMY AL&T NEWS

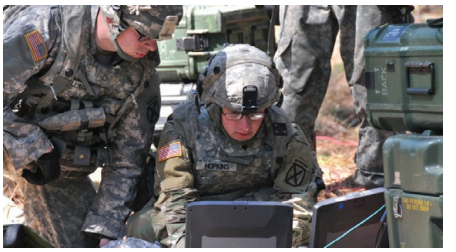
For the latest news in Army acquisition, logistics and technology delivered right to your inbox, go to **asc.army.mil** and click on the **SUBSCRIBE** icon.

SUBSCRIBE
AL&T news and announcements

In case you missed it, go to **http://asc.army.mil/web/access/**.

You'll find stories like these:

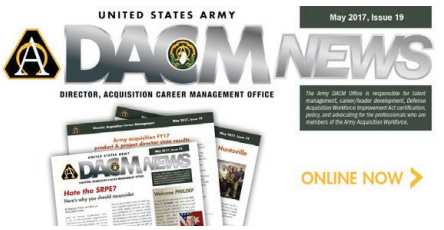
SUPERCOMPUTERS SAVE LIVES, MONEY FOR ARMY
By David McNally



LABS CONNECT VIRTUALLY TO RAPIDLY TEST INTEGRATED CAPABILITIES
By Nancy Jones-Bonbrest

ARMY STARTS WORK ON NEW TANK AFTER ABRAMS – 2030S
By Kris Osborne

USD(AT&L) AWARDS AN OPPORTUNITY TO HIGHLIGHT SUCCESSES
By Susan Follett



NEWSLETTER PROVIDES ACQUISITION WORKFORCE CAREER NEWS, TIPS
By Susan Follett

I3MP COMPLETES MISSION-CRITICAL NETWORK UPGRADE AT FORT DETRICK
By Scott Sundsvold

Connect with USAASC at

Dig Deeper with Army AL&T's ELECTRONIC EXTRAS

That plus sign means there's more! More information, that is. There's only so much room between the front and back covers of Army AL&T, and that's why even die-hard readers of the hard-copy magazine will want to check out the electronic extras available on the app and online version of Army AL&T.

Go to **http://usaasc.armyalt.com/** or use the iOS or Android app and look for the + icon to find additional content available online.

Watch an interview with Louie Lopez, chief of RDECOM human capital planning and development and STEM education outreach, featured in "**BUILDING A LOVE FOR MATH AND SCIENCE**."

Watch the TED Talk by Harvard Business School Professor Linda A. Hill, featured in "**FIRST, MANAGE YOURSELF**."

Learn GCSS-Army the right way, as featured in "**ON THE RIGHT GTRAC**."

Check out Defense Acquisition University's Mission Assistance Workshops, in "**NO TIME TO LOSE**."

See how to turn a spreadsheet into a map in "**BUILDING A BETTER MIRROR**."

Learn more about how Soldiers overcome language barriers in "**FACES OF THE FORCE: MR. MICHAEL DONEY**."

Click on the icon wherever you see it in the issue to see more photos and read additional articles.

For more news, information and articles, go to the USAASC website at **http://asc.army.mil**. Click on the Publications tab at the top of the page.

From the Editor-in-Chief

"At some point people, motivated by their desire to serve the country and the men and women defending it, feel frustrated in their efforts to make a difference and do not feel empowered with respect to work processes. The workforce deserves a better system."

Excerpt from Section 809 Panel Interim Report, May 2017, Advisory Panel on Streamlining and Codifying Acquisition Regulations

That "workforce" is you, and the "system" under review is the quagmire of reports, reviews and tests you are required to execute, by law, regulation and policy. Follow the rules as laid out, and you are accused of being bureaucratic. Don't follow them, and you are on the wrong side of a counseling, at best—or fired, at worst. That troublesome paradox defines the mission of the Section 809 Panel: Find pieces of the Federal Acquisition Regulation that can be streamlined, modified or deleted … and thus, hopefully, let you do your job!

The panel's work coincides with a multipronged effort to reform the federal government and reduce the federal civilian workforce. Implementing this effort within the Army is the HQDA Reform Initiatives Task Force, invoking DOD's mandate to evaluate and adjust processes, organizations and workforce management practices in an effort to "remove barriers that hinder employees from producing results." Great news.

Which brings me to the focus of this issue: you, the workforce at the center of all these initiatives. After all, without you, none of the efficiency, innovation or reduction in bureaucracy matters, because without you there is nobody to equip Soldiers to fight and win America's battles. Specifically, this issue delves into talent management, which, put simply, places the right people, with the right skills, in the right jobs at the right time. Do we envision the Army deploying hovercraft laser tanks to help the Air Force deal with anti-access and area denial in the multi-domain battle? Then we'd better fire up the science, technology, engineering and mathematics (STEM) machine and identify new training programs and certification standards, because we're going to need people with those skills—lots of them.

This issue explores the many innovative ways that commands and organizations are, in effect, seeking to build their human capital and leverage the tools at their disposal to make the most of it. For example, Maj. Gen. Wilson A. "Al" Shoffner Jr., recently of the Army's Talent Management Task Force and now at the Army Rapid Capabilities Office, offers his ideas on Army acquisition talent management in a Q&A on Page 38. "Building a Better Mirror," on Page 124, talks about the importance of a diverse workforce and the demographic complexities of defining diversity in any given organization.

@ Email Nelson McCouch III
ArmyALT@gmail.com

And those are just a couple of facets to consider. "Engineers Don't Need Trains," on Page 64, describes how the STEM Superstar program, conceived and run by the U.S. Army Communications-Electronics Research, Development and Engineering Center, uses pop culture, superheroes and everyday activities to show elementary school kids that STEM is all around them, not confined to a lab or a library. Those kids, after all, are the talent pool for our hovercraft laser tanks.

Think your organization may be dysfunctional? Find out how to fix it on Page 76 in our "Critical Thinking" interview with Dr. Linda A. Hill, Harvard Business School's Wallace Brett Donham Professor of Business Administration and, as it happens, an Army brat. Hill is co-author of "Being the Boss: The Three Imperatives for Becoming a Great Leader," among other books, and offers lots of insights into how people can work together effectively to accomplish the mission.

As always, the great stories we cover require a talented team of writers and editors at Army AL&T. Unfortunately, we are losing a member of that team to retirement. Bob Coultas, who has been a writer and editor here for 11 years, will be retiring on June 30. Bob has served his country for 41 years, doing yeoman's work at Army AL&T, elsewhere in government and during his 22 years on active duty as an Army Public Affairs broadcaster. Thank you, Bob, for your service, and best wishes for your retirement.

Comments, suggestions, story ideas? Please send them our way at **ArmyALT@gmail.com**. We love to get mail!

Nelson McCouch III
Editor-in-Chief

KEEPING WATCH ON THE CYBER FRONT

Spc. Nathaniel Ortiz, with the Expeditionary Cyber Electromagnetic Activities Team, 781st Military Intelligence Battalion, conducts cyberspace operations in May at the National Training Center at Fort Irwin, California. Taking cyber capabilities—a priority in DOD's FY18 budget request—to the edge of a complex battlefield requires serious know-how and technical skill, both on the part of the Soldiers who operate the capabilities and the acquisition professionals who must get the capabilities to Soldiers. (Photo by Bill Roche, U.S. Army Cyber Command)

FROM THE ARMY
ACQUISITION EXECUTIVE
MS. STEFFANIE B. EASTER

MAINTAINING A WORLD-CLASS WORKFORCE

AAW's importance to the mission makes professional development all the more vital

As the Army builds a more agile and adaptive force for the future, we must continue to provide our Soldiers a decisive advantage by maintaining high-quality acquisition professionals to develop, acquire, field and sustain the world's best equipment and services. Comprising over 38,000 professionals, both military and civilian, our Army acquisition community is responsible for outfitting Soldiers around the globe for any and all possible situations and conflicts they may encounter. Additionally, we must accomplish this against the backdrop of an increasingly complex environment, which requires us to be well-educated, well-trained and well-informed in making the right, tough decisions.

Soldiers everywhere feel the effects of decisions made by the Army Acquisition Workforce (AAW), as those decisions influence how missions are executed and can make the difference between success and failure. Some of the decisions that acquisition professionals deal with on a daily basis include: What is the best way to equip our Soldiers for the complex threats of the future? How do we stay ahead of an enemy determined to exploit vulnerability in our capabilities? How do we keep up with the pace of technological change? What is the best way to field the latest technology in a timely way? Are we meeting our responsibilities to use the taxpayer's dollar efficiently?

AAE TOUCHES BASE WITH AAW

Lt. Col. Jenny Tam, right, product manager for satellite communications in the Program Executive Office for Command, Control and Communications – Tactical (PEO C3T), briefs Army Acquisition Executive Steffanie B. Easter at Aberdeen Proving Ground, Maryland, in May. Easter stresses the importance of providing acquisition workforce members the training and education they need to make tough decisions in a high-stakes, resource-constrained environment. (Photo by Dan Lafontaine, PEO C3T Public Affairs)

HIGH-TECH VISION FOR SOLDIERS

Ngoc Le, an engineer assigned to the product manager for Soldier maneuver sensors at Fort Belvoir, Virginia, familiarizes himself with the latest in rapid target acquisition technology during training in April. The technology wirelessly connects a weapon's thermal sensor and reticle with the Enhanced Night Vision Goggle III. The combination of high-tech equipment and the skilled workforce that designs, acquires and supports it gives Soldiers a crucial edge. (Photo courtesy of the Program Executive Office for Soldier)

It takes a certain individual to enter the acquisition profession and work on issues of this magnitude, every day, worldwide. Furthermore, it takes an exceptional individual to thrive and succeed in this profession—and exceptional individuals are exactly what make up the AAW.

UNCOMMON IMPACT

The AAW is a dynamic and unique group of smart, professional and passionate people, all of them committed to the ultimate goal; providing cutting-edge capabilities to our Soldiers. Very few career fields have the impact on a Soldier that an acquisition professional does.

Whether it's the CH-47F Chinook that Soldiers load themselves into or the 5.56 mm ammunition they load into their weapons' magazines, acquisition professionals play a key role in providing products that support operations involving Soldiers around the world.

It is imperative that we sustain our investment in a world-class workforce by continuing to develop, train and grow our talent. Human capital planning increases the effectiveness of the workforce by identifying and addressing workforce gaps, and providing solutions to recruit, develop and retain a highly skilled, fully engaged AAW.

One element of this continuous improvement of the workforce is the Human Capital Strategic Plan (HCSP), a five-year plan to help establish goals, objectives and initiatives that support the AAW and will help to strengthen its foundation for the future.

The HCSP includes five major goals:

- Workforce planning—Shaping the team to meet current and future acquisition requirements.

RAMPING UP READINESS

Soldiers of the 2nd Cavalry Regiment engage Soldiers of the 1st Battalion, 4th Infantry Regiment playing the role of opposing forces in a town assault scenario during Exercise Saber Junction 17 at the Hohenfels Training Area, Germany, in May. Saber Junction 17 exemplifies one kind of combat environment for which the AAW is responsible for outfitting Soldiers: unified land operations with an emphasis on rehearsing the transition from garrison to combat operations and exercising operational and tactical decision-making skills. (U.S. Army photo by Spc. Rachel Wilridge, Viper Combat Camera Team, U.S. Army Europe)

- Professional development—Keeping our professionals qualified and fully trained.
- Leadership development—Developing and sustaining effective Army acquisition leaders through specialized leader development programs and opportunities.
- Employee engagement—Giving our acquisition professionals the tools to take ownership of their careers, and empowering them with a sense of purpose and commitment to the mission.
- Communications and collaboration—Improving these to better support the Army acquisition community.

CONCLUSION

The HCSP is just one example of how we are refining the AAW to position it for success. We must ensure that we have the right people with the right skills to meet current and future equipping needs. We must continue to cultivate "common ground" to work more effectively, collaboratively and productively with everyone on the Army team.

Today's challenges, threats and opportunities are unprecedented. Our Soldiers depend on each of us to be fully engaged and highly effective as we make sure they have the capabilities they need to conduct full-spectrum operations across the globe. It is paramount that we systematically and strategically manage the acquisition workforce, ultimately to ensure mission success. Well-educated, well-trained and experienced people are the key. High-quality acquisition workforce professionals drive better acquisition outcomes.

Readiness is the Army's No. 1 priority. Our acquisition professionals must remain ready at all times to provide the equipment and services that our Soldiers need to win across multiple missions, domains, conditions and geographies now and into the future.

MS. SHANNON J. WESTERN

COMMAND/ORGANIZATION:
U.S. Army Mission and Installation Contracting Command – Fort Lee, Virginia

TITLE: Quality assurance specialist

YEARS OF SERVICE IN WORKFORCE: 9

YEARS OF SERVICE IN MILITARY: 13 (6 on active duty and 7 in the U.S. Army Reserve)

DAWIA CERTIFICATIONS:
Level I in quality assurance

EDUCATION:
B.A. in contract management and acquisitions, Strayer University

AWARDS:
Afghanistan Campaign Medal (one campaign star); NATO Afghanistan Service Medal; Army Commendation Medal; Army Achievement Medal; Army Good Conduct Medal; Army Certificate of Achievement; National Defense Service Medal; Global War on Terrorism Service Medal; Army Service Ribbon; Noncommissioned Officer Professional Development Ribbon; Overseas Service Ribbon; Armed Forces Reserve Medal with M Device

The secret to longevity

Pay attention: Shannon Western has some important information to pass along. "Those who have been doing this work for a long time let me in on a little secret. The key to longevity in this field is gratitude and patience. A lot of people have been easily shaken by the changes in budget, internal personnel structures, additional responsibilities and tougher policies. And during the course of my short career, I have personally experienced all of those challenges. But I've taken the advice I received, and I've become more knowledgeable, more trustworthy and a stronger team player."

Western, now a quality assurance specialist with the U.S. Army Mission and Installation Contracting Command (MICC) at Fort Lee, Virginia, started her acquisition career nine years ago. She joined the Army Reserve in 2007, changing her military occupational specialty from communication specialist to military pay noncommissioned officer (NCO). She deployed to Afghanistan in 2009 and, during that two-year assignment, uncovered $3 million in incorrect billing.

"In the first five months of my deployment, I worked from dawn to dusk, seven days a week, paying invoices from blanket purchase agreement contracts that were backlogged for more than three years," she explained. "These unpaid invoices had severely impaired small businesses and caused unrest and strife with local nationals."

Western was deployed before the General Fund Enterprise Business System (GFEBS) was in place, she said, "and the office I worked in had seen a lot of contract specialists and other personnel who didn't understand the checks

and balances system that was in place for contracting." Part of her work involved matching an obligated line of accounting to a contract, invoice and receiving report.

For some of the invoices, "it appeared as if it was an accidental duplicate contract, but it was suspicious because another receiving report was generated with the duplicate contract on the same date," Western said. "In this case, invoices were erroneously generated by other service members, one in contracting and one in supply. Because we were downrange and it was before GFEBS was in place, generating an invoice was too easy: It could be written on a piece of paper, and as long as it was legible, it counted."

Western turned over her discoveries to the Criminal Investigation Division but was transferred to another location shortly afterward, and she isn't sure what came of the investigation. "I have seen supply [personnel] generate a second receiving report because the first one was supposedly lost, instead of figuring out what happened to the first report and making sure it didn't happen again," she said. "Regardless of the reasons behind it, it's careless to generate documentation out of laziness, especially with so many millions of dollars at stake. GFEBS is a more secure program, and it's unlikely there'll be many more fraudulent attempts. The program catches mistakes for us—it's similar to the difference between an online checkbook and one maintained by hand."

Stateside since 2011, Western now coordinates and monitors the quality assurance (QA) program and surveillance systems for MICC-Fort Lee, providing QA support to the contracting office, contracting officer's representatives (CORs) and other surveillance personnel. She also supports the organization's acquisition strategy planning, documentation review, quality management reviews, QA support and annual contract management reviews.

"We have an amazing team and great support at MICC-Fort Lee," Western said. "Our leadership at headquarters genuinely cares for our well-being; they've worked with us to help us meet our mission and demonstrate that even though we're a tiny office in Virginia, we are an asset and are treated as such."

Among the leadership at MICC is Terry Hyatt-Amabile, whom Western credits as having a significant impact on her career. Now the chief of contracting operations for the MICC Field Directorate Office at Fort Eustis, Virginia, Hyatt-Amabile was formerly the director of MICC-Fort Lee. "When I was her assistant at Fort Lee, she showed me the acquisitions field from a management perspective," Western said. "Terry has been the most effective leader I've worked with, not just during my time in acquisition but through 20 years of working in various positions. I continue to pass on her knowledge to others, including incoming directors and new procurement techs. It is a good feeling to be able to help beyond my career field, and it feels good to be part of a team."

Western's favorite task "is training, mentoring and evaluating more than 120 CORs in monitoring, reviewing and executing surveillance of services provided by contractors to ensure that the goods and services they provide comply with the terms and conditions of the contracts."

She noted that the biggest challenge facing QA specialists is shifting the mindset of contracting officers (KOs), contract specialists and CORs so that they're focused on the importance of contract surveillance. "Generating a contract can be an exhausting process, but the next step—ensuring that the vendor is performing to the agreed-upon standards—is also important," she said. "Being a COR on Fort Lee is usually an additional duty. Often, personnel don't find out they have to perform that role until after they've been nominated for it. Additionally, they often aren't given clear instruction as to what qualifications they need or what the position entails."

For Western, the COR Tracking (CORT) Tool has been effective in overcoming that challenge. The CORT Tool provides contracting personnel and requiring activities the means to track and manage COR assignments across multiple contracts throughout DOD. Western has set up monthly workshops, open forums designed to help familiarize users with the new software. "In addition to getting users up to speed on the system, the meetings have become a great way for me to communicate with the COR, the KO and the contract specialist," she said. "We're now all on the same sheet of music. Additionally, CORs are now helping their co-workers navigate through the software and informing them of the training requirements as a COR, so it feels like each class is multiplying my efforts."

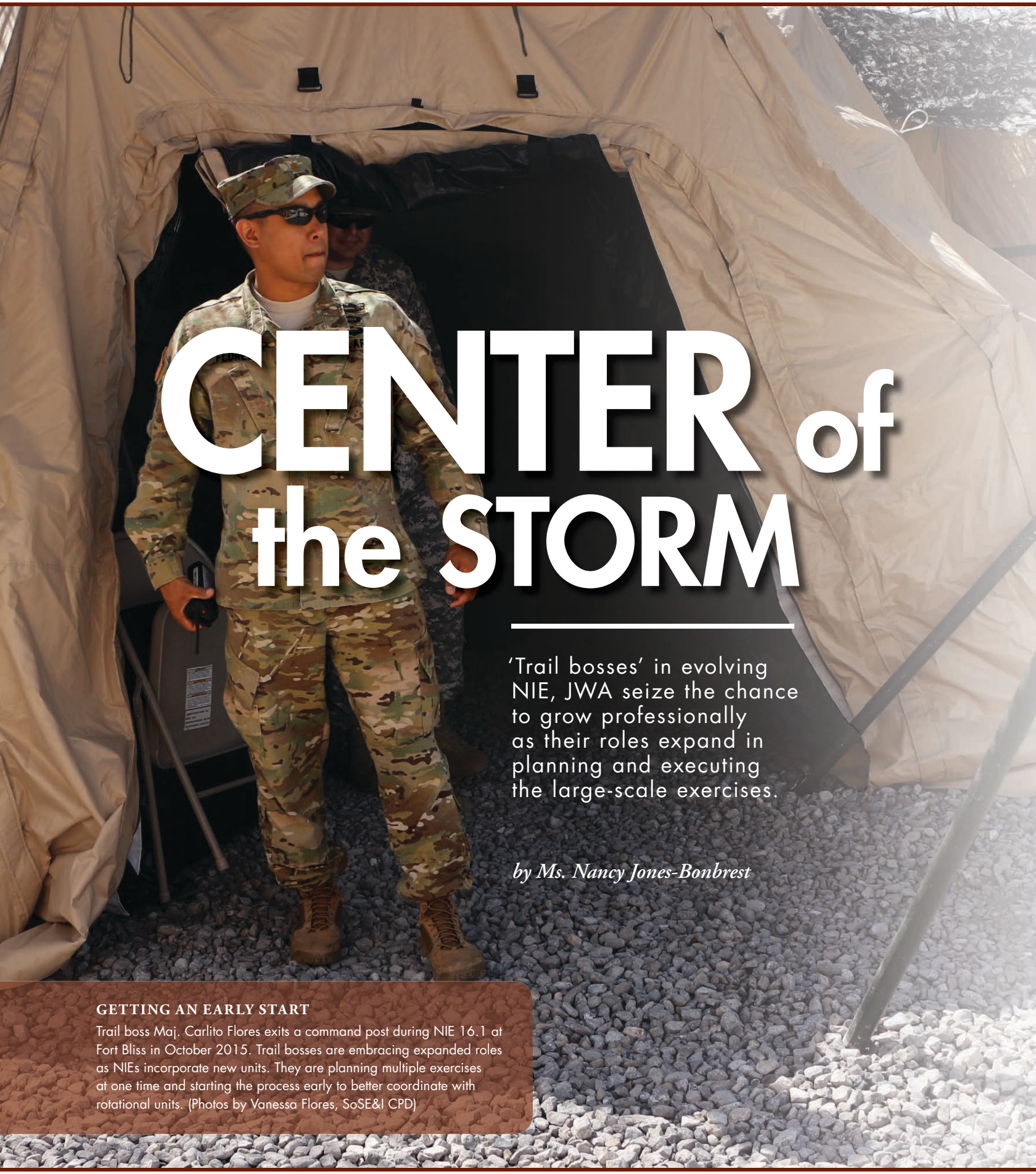
With the advice she's received and some things she's learned about herself along the way, Western envisions a long career in acquisition. "Over the years, I have discovered that my three strongest characteristics are integrity, loyalty and persistence, all of which create a solid acquisition specialist. I can't imagine not working as an acquisition specialist in support of our warfighters and their mission."

—MS. SUSAN L. FOLLETT

CENTER of the STORM

'Trail bosses' in evolving NIE, JWA seize the chance to grow professionally as their roles expand in planning and executing the large-scale exercises.

by Ms. Nancy Jones-Bonbrest



GETTING AN EARLY START
Trail boss Maj. Carlito Flores exits a command post during NIE 16.1 at Fort Bliss in October 2015. Trail bosses are embracing expanded roles as NIEs incorporate new units. They are planning multiple exercises at one time and starting the process early to better coordinate with rotational units. (Photos by Vanessa Flores, SoSE&I CPD)

The Army's Network Integration Evaluations (NIEs) and Joint Warfighting Assessments (JWAs) were meant to be fluid and flexible, adaptable to current demands. In keeping with that design, both events are undergoing sweeping changes that will improve the integration of emerging technologies and meet the call for readiness in an ever-changing global threat environment. As the Army shakes up the process, the people who conduct the NIEs and JWAs are also adapting their roles and responsibilities—and making the most of the opportunity to burnish their skills.

The NIE and JWA are Soldier-led, complementary exercises designed to integrate and mature the Army's tactical network and emerging capabilities in an operational environment. Through simulated combat missions, including combined arms maneuver, counterinsurgency and stability operations, the Army has been able to integrate, assess and improve hundreds of government and industry technologies using Soldier feedback. Since its inception, the combined NIE and JWA process has made possible the evaluation of more than 270 capabilities with the execution of more than 130 other demonstrations and risk reduction events.

At the center of it all are the NIE and JWA trail bosses, acquisition professionals who serve as the vital link between the operational units that put on the events and the many government and industry stakeholders that provide capabilities for evaluation. Trail bosses communicate the operational intent of the various systems, ensure that the proper training and equipment are in place, and conduct end-to-end integration and planning to execute successful exercises. From a talent management perspective, trail bossing is a rare and valuable chance for a junior or midcareer acquisition officer to interact with multiple capabilities and stakeholders in a high-profile setting.

Indeed, as the NIE and JWA evolve, even the term "trail boss" no longer describes the full scope of these officers' duties. What began as an assignment to guide the unit through the validation exercise (VALEX) and operational evaluation has evolved to include a heightened level of planning, preparation and coordination akin to the job of a program manager responsible for guiding a portfolio of products through development and fielding. Reflecting this change, some trail bosses now have the formal title "assistant product manager" (APM).

"It used to be about getting the unit through the validation exercise that shows how the network works prior to an NIE," said Maj. Carlito Flores, APM with the System of Systems Engineering and Integration Directorate's Capability Package Directorate (SoSE&I CPD). Previously, Flores served as the APM for Nett Warrior with the Program Executive Office (PEO) for Soldier at Fort Belvoir, Virginia. "Now, we are able to see the larger operational picture by being part of the whole planning process. We've stepped up our role in interacting with the unit, and serve as more of a planner to senior leadership."

This year, for the first time since the inception of the NIEs in 2011, the operational test unit will no longer be the 2nd Brigade Combat Team, 1st Armored Division. Instead, the Army will rotate in other formations to meet readiness goals and provide fresh perspectives on new technologies. At NIE 17.2, to be held in July at Fort Bliss, Texas, the 2nd Brigade Combat Team, 101st Airborne Division (2/101), a light infantry unit based at Fort Campbell, Kentucky, will serve as the test unit. Next spring, JWA 18.1 will take the changes a step further when the event moves to Europe and features the 2nd Brigade, 1st Infantry Division along with a large cast of joint and multinational partners.

MAXIMUM MULTITASKING

Trail boss Maj. Paul Santamaria inspects a vehicle during the VALEX phase of AWA 17.1 at Fort Bliss in October 2016. Trail bosses have broad responsibility at the NIEs and JWAs, which gives them a better understanding of the larger operational picture. That, in turn, enhances their acquisition expertise.

ACQUISITION AMBASSADOR

The new evaluation construct of NIEs and JWAs has elevated the trail bosses' interaction with the test unit, making them "more of a planner to senior leadership" than before, said trail boss Maj. Carlito Flores, right, shown talking with Soldiers during the VALEX phase of the NIE 16.1 at Fort Bliss in October 2015.

And that's only the latest twist. In 2016, the Army changed the NIE from a biennial event to a yearly event and introduced the newly established Army Warfighting Assessments (AWAs, now called JWAs), which also take place once a year. While the NIEs focus primarily on formal system test events, the JWAs' primary focus is on concepts and prototypes. Together, they pack a one-two punch of operational assessments that provide Soldier feedback on emerging concepts and capabilities to improve the combat-effectiveness of the joint force.

MAKING THE RIGHT CONNECTIONS

Amid all of these changes, the trail bosses serve as ambassadors for the acquisition community. They link the acquisition side of the house—including the cost, schedule and performance constraints that project managers must abide by—with the operational effects of introducing new technology to training scenarios, while also meeting the needs of other stakeholders, such as the test community and industry.

The change in operational units means that they are no longer working in established relationships, said APM Maj. Alicia Johnson of the SoSE&I CPD. Before taking this assignment, Johnson worked as an administrative contracting officer for the Defense Contract Management Agency in Springfield, New Jersey. "It's really about getting out to those installations, educating the units because they may or may not understand what the NIE is, and explaining how they are going to participate. We also let them know the importance of what they are doing," she said.

Trail bosses also serve as the glue that binds the many pieces of the exercises. Because the units are operational brigades with their own missions in addition to the NIE mission, trail bosses must balance resources and time. They work to ease the burden on the units that are learning new systems being evaluated as part of the NIE while meeting traditional unit training requirements.

Trail bosses can often be found chairing a meeting, conducting close coordination with stakeholders on when and where equipment will arrive for training and integration, performing cost analysis, briefing leaders or managing direct support to units. They work regularly on future requirements for upcoming exercises, including developing schedules and budgets. They spearhead efforts for design, integration and VALEX coordination with partners that include the U.S. Army Joint Modernization Command, Army Rapid Capabilities Office, U.S. Army Europe, U.S. Army Forces Command, Army PEOs and the U.S. Army Training and Doctrine Command's capability managers.

At the center of it all are the NIE and JWA trail bosses, acquisition professionals who serve as the vital link between the operational units that put on the events and the many government and industry stakeholders that provide capabilities for evaluation.

"You speak both languages by translating operational requirements and objectives to the technical requirements and objectives," Flores said.

Maj. Paul F. Santamaria, SoSE&I CPD APM, said the role has a distinct rhythm.

"When it comes to execution of each exercise, our scope gets less wide and more deep in order to drill down into a unit's needs to successfully accomplish the exercise," said Santamaria, who previously worked as an assistant professor in the Department of Systems Engineering of the United States Military Academy at West Point. "At the conclusion, we then widen our aperture and coordinate with all external organizations for the next one."

NOT YOUR AVERAGE APM

Unique to the trail boss role is the scale of exposure. While traditional product managers focus on one portfolio of individual systems, trail bosses consider their portfolio to be the tactical network and the system-of-systems capabilities that interact with it. Trail bosses see the latest technology first, understand where the Army is heading with capabilities and absorb leadership priorities.

Working with so many different capabilities—and so much operator input—provides a wider perspective when they move on to future assignments in the Army Acquisition Corps.

"At the NIEs, we are exposed to so many different concepts and see them work together as a system of systems," Johnson said. "With [this experience] comes a larger concept of understanding of where modernization is heading. As we look to future assignments or look at what is going on in the acquisition community, we can see the direction we are heading, which is really a unique opportunity."

CONCLUSION

Originally designed to focus on the tactical network, the exercises are evolving to look at a wide variety of capabilities, such as advanced tactical power, counter-unmanned aircraft system capability and cyber and electronic warfare technologies.

This continuous cycle of NIEs, and now JWAs, helps the Army keep pace with the speed of technology while incorporating Soldier feedback into system design and training. The exercises inform tactics, techniques and procedures for using the technologies in the field.

As the NIEs incorporate new units and the JWAs new partners and locations, the trail bosses are embracing their expanded roles. For example, they are now planning multiple exercises at one time and starting the process earlier than ever to coordinate with rotational units.

"I'm capturing all these lessons learned from what we are doing at Fort Campbell, and I'm trying to apply them not just with an operational unit but with one with an operational mission in what seems to be an operational theater," said Santamaria, who recently returned from a trip to Germany to plan JWA 18.1. "The role of trail boss has evolved from having a static unit conducting exercises with new technology, to a not-so-static unit conducting an exercise in a different environment—and how do you bring all those forces to bear? So bringing all those pieces together is something really unique."

For more information, go to ***http://rapidcapabilitiesoffice.army.mil*** *or email the Army Rapid Capabilities Office at* ***rapidcapabilitiesoffice@mail.mil****.*

SETTING PLANS IN MOTION

Trail bosses, from left, Maj. Carlito Flores, Maj. Paul Santamaria and Maj. Alicia Johnson review plans for JWA 18.1 during an April meeting at Fort Bliss. JWA 18.1 is scheduled for May 2018 in Europe. Trail bosses are tasked with developing schedules and budgets, as well as leading design, integration and VALEX coordination efforts with a variety of partners, including Army and joint organizations.

MS. NANCY JONES-BONBREST is a staff writer for Data Systems Analysts Inc., providing contract support to the Army Rapid Capabilities Office. She holds a B.S. in journalism from the University of Maryland, College Park. She has covered Army modernization for several years, including multiple training and testing events.

A FORCING FUNCTION FOR INTEGRATION

A look at the systems, participants and firsts from more than a dozen NIEs.

The Army rolled out its new network modernization strategy with a flourish. On a Monday in May 2011, no fewer than 12 stars assembled for a news conference with the Pentagon press corps. Led by Gen. Peter W. Chiarelli, then the vice chief of staff of the Army, the generals made the case for a new paradigm called the Network Integration Evaluation (NIE), described by Chiarelli as "a revolutionary new approach."

Because of wartime necessity and the culture of the acquisition system, the Army had been developing and delivering individual components of the tactical communications network on different timelines, even though they ultimately had to function as a system of systems. That wouldn't work for the different parts of a tank, and it certainly didn't make sense for communication systems.

The new plan was this: Twice a year, the Army would hold a large-scale event to test and evaluate all of its digital tactical communication systems—programs of record, theater-provided equipment and emerging products from industry—at the same time and place. The settings were Fort Bliss, Texas, and White Sands Missile Range, New Mexico, which offered expansive and challenging terrain. It would devote an operational brigade combat team (BCT)—the 2nd BCT, 1st Armored Division (2/1 AD)—to trying out the equipment in realistic scenarios against an opposing force. The Soldiers' feedback from exercise to exercise would inform procurement and fielding decisions. The burden of technical system integration would be handled at the event and thus lifted from the deployed force.

The NIE fulfilled its mission as a forcing function for integration, becoming a central point for establishing and validating a new network baseline that provided mission command on-the-move and digital connectivity down to the Soldier level. The Army then fielded that network to 14 BCTs and eight division headquarters through July 2017, as an integrated series of "capability sets," beginning with Capability Set 13, delivered to two brigades of the 10th Mountain Division in 2012. After using the equipment in Afghanistan, one 10th Mountain Soldier described it as a "digital guardian angel."

As the NIEs continued, both the network and the process matured. The Army made strides in expeditionary mission command, tactical radios, handheld devices, vehicle routers, satellite terminals, operational energy solutions, mission command applications and other technologies. The network remains imperfect—the Army is still working to simplify tactical communication systems so they are easier for Soldiers to use in all operational environments, and to protect those systems from cyber vulnerabilities—but the NIE has provided an operational laboratory to address these challenges head-on.

Recognizing industry frustrations with programmatic test constraints, the Army separated the NIE into two complementary events: the NIE, focused on executing formal testing in an integrated environment; and the Army Warfighting Assessment, later named the Joint Warfighting Assessment (JWA), focused on evaluating experimental concepts and capabilities with joint and multinational participation. Additionally, when readiness demands required the assignment of 2/1 AD to other missions, the Army began rotating in new formations to the NIE events, bringing new operational perspectives to the technologies.

Although no longer "new" or "revolutionary," today's NIEs and JWAs continue to provide the Army's only venue to conduct integrated capability evaluations and assessments with operational units, as well as to execute joint, interagency, intergovernmental and multinational training, testing and integration to enable interoperability and compatibility among Army partners. As the Army expands rapid prototyping and experimentation efforts, the NIEs and JWAs will continue to provide the Army with operational Soldier feedback on leap-ahead technologies early in the life cycle to inform procurement strategies.

—MS. NANCY JONES-BONBREST

NIE 11.2

2011
June-July

Goal: Set the tone as a semi-annual event to integrate and mature the Army's tactical network.

Key capabilities: Joint Capabilities Release, Soldier Radio Waveform (SRW), Wideband Networking Waveform.

Units participating: 2nd Brigade Combat Team (BCT), 1st Armored Division (2/1 AD).

First: The first exercise of its type to combine test and evaluation while demonstrating the Army's holistic focus on integrating network components simultaneously in one operational venue.

NIE 12.1

2011
October-November

Goals: Connect lower-echelon Soldiers to the network; execute mission command on-the-move; establish an integrated baseline for the exercise objective; and bridge Army network architectures.

Key capabilities: Warfighter Information Network – Tactical (WIN-T) Increment (Inc) 2, Rifleman Radio, SRW.

Unit participating: 2/1 AD.

First: For the first time, the operational mission included a substantial combined arms maneuver.

NIE 12.2

2012
May-June

Goal: Serve as the final "checkout" for the first capability set, an integrated group of network technologies that began fielding to BCTs later that year.

Key capabilities: WIN-T Inc 2, Manpack Radio.

Units participating: 2/1 AD; 101st Airborne Division; 1st Sustainment Brigade, a "simulation brigade" that added realism and network traffic; 2nd Engineer Battalion as the opposing force.

First: For the first time, Army planners incorporated the role of higher headquarters, provided by the 101st Airborne Division. Just as it would in combat operations, the division commanded and coordinated across subordinate elements.

NIE 13.1

2012
October-November

Goal: Evaluate the Capability Set 14 baseline and integration onto heavy vehicle platforms.

Key capabilities: Mid-tier radio waveforms, Nett Warrior and WIN-T Inc 2, used to implement improvements and reduce risk before the follow-on operational test and evaluation (FOT&E) scheduled for NIE 13.2.

Unit participating: 2/1 AD.

First: Provided the first glimpse of Capability Set 14.

NIE 13.2

2013
May

Goal: Execute WIN-T Inc 2 FOT&E. A successful test meant the Army could keep fielding WIN-T Inc 2 to operational units beyond Capability Set 13.

Key capabilities: WIN-T Inc 2, Joint Battle Command – Platform (JBC-P), Nett Warrior.

Units participating: 2/1 AD; this NIE also set the stage for NIE 14.2, in which joint and coalition units joined the exercise.

First: This NIE helped inform two BCTs from the 10th Mountain Division, the first to deploy with a capability set. At the time, they were in the final stages of training before deploying to Afghanistan to serve as security forces' "advise and assist" teams. The units, while working closely with Afghan forces, relied heavily on the equipment as the Army began to remove infrastructure that previous units had relied on for communications.

NIE 14.1

2013
October-November

Goal: Pioneer a combination of live, virtual, constructive and distributed operations to increase efficiencies and demonstrate new training techniques.

Key capabilities: Manpack Radio, Joint Warning and Reporting Network, Command Post of the Future.

Unit participating: 2/1 AD.

First: Helped set conditions for joint and multinational participation during NIE 14.2, including the U.S. Marine Corps' first unit equipped with JBC-P.

NIE 14.2

2014
May

Goals: Follow-on tests for the Handheld, Manpack & Small Form-Fit Radio, JBC-P and the Unmanned Aerial System – Tactical Common Data Link/Universal Ground Station, as well as an operational test for the smartphone-like Nett Warrior system.

Key capabilities: JBC-P; Manpack Radio; Nett Warrior; Shadow Unmanned Aerial System; and WIN-T Inc 1b, which incorporated several new capabilities, including Mission Network Enclave (now known as the Army Common Enclave), Secure Internet Protocol Router Network for Wi-Fi and the Tropo Lite.

Units participating: 2/1 AD; a British mechanized brigade headquarters; 86th Expeditionary Signal Battalion; and 900 Marines from the 2nd Battalion, 8th Marine Regiment.

First: For the first time, the NIE ran in conjunction with the Joint Staff-led Bold Quest exercise at nearby White Sands Missile Range in New Mexico. This collaboration with joint and coalition forces was meant to drive advances in interoperability.

NIE 15.1

2014
October-November

Goal: Complete FOT&E 2 for WIN-T Inc 2 in preparation for a full-rate production decision.

Key capabilities: WIN-T Inc 2, Rifleman Radio, Unified Data, Unified Trouble Ticketing System.

Unit participating: 2/1 AD.

First: A full battalion of Stryker vehicles equipped with WIN-T Inc 2 was evaluated.

NIE 15.2

2015
May

Goal: Conduct operational tests for the Distributed Common Ground System – Army (DCGS-A) and the Mid-tier Networking Vehicular Radio (MNVR).

Key capabilities: DCGS-A, MNVR, network transport convergence demonstration leveraging the Modular Communications Node – Advanced Enclave and other WIN-T network upgrades.

Unit participating: 2/1 AD.

First: The Army demonstrated an unclassified wireless command post.

NIE 16.1

2015
September-October

Goal: Serve as the final proof of concept for Army Warfighting Assessments (AWAs), now called Joint Warfighting Assessments.

Key capabilities: WIN-T; JBC-P; WIN-T's network enclave, the Coalition Communications Enclave (CCE); Multilateral Interoperability Programme (MIP); expeditionary command posts; and operational energy capabilities.

Units participating: 2/1 AD; I Corps; 1st Armored Division (1 AD); 82nd Airborne Division, conducting a joint forcible entry; 101st Airborne Division, conducting an air assault; and 14 NATO partner nations.

First: The United States and NATO partner nations addressed network challenges to improve coalition network capability, interoperability and information flow.

NIE 16.2

2016
May

Goals: Assess network operations (NetOps) tools that Soldiers use to manage the network; inform command post requirements; initiate an assessment of the second version of Command Post Computing Environment (CP CE) and perform an operational assessment of the mid-tier network.

Key capabilities: WIN-T, NetOps tools, CP CE, mid-tier network, Spider Inc 1A.

Unit participating: 2/1 AD.

First: Transition from semiannual to annual schedule of NIEs.

AWA 17.1

2016
October

Goal: Provide a venue to securely improve the interoperability between American and coalition mission command and communications systems.

Key capabilities: MIP; CCE; vehicle-based command post concept; Counter-Unmanned Aircraft System Mobile Integrated Capability.

Units participating: 2/1 AD; U.S. Marines, Air Force and special operations elements; and five multinational partners, from Australia, Canada, Denmark, Italy and the United Kingdom.

First: Inaugural event in a series of Soldier-led assessments to maximize collective training resources, joint and multinational interoperability and future force development priorities.

NIE 17.2

2017
July

NIE 17.2 will use a light infantry unit for the first time, bringing in the 2nd BCT, 101st Airborne Division as the source unit.

Lead-up integration activities to take place at home station (Fort Campbell, Kentucky), with NIE execution taking place in July at Fort Bliss.

The event will feature two systems under test: the Tactical Communications Node Lite/Network Operations Security Center Lite and the Terrestrial Transmission Line of Sight radio.

Other capabilities under evaluation include defensive cyber operation solutions; Mobile User Objective System capability on Manpack Radio; Air-Ground Integrated Link Extended Network; alternative energy solutions; and integrated electronic warfare capabilities.

JWA 18.1

2018
May

In January 2017, the Brigade Modernization Command received Army approval to change its name to Joint Modernization Command, and to change the name of the AWA to Joint Warfighting Assessment (JWA).

The first JWA will take place at several locations in Germany in 2018. The focus will be on joint and multinational interoperability and future force development.

Participating units will perform joint expeditionary maneuver operations.

Future Vertical Lift, advanced protection, cross-domain fires, cyber and alternative power solutions and autonomous capabilities are scheduled to be assessed.

NIE: EVALUATION EVOLUTION

Highlights shown, not all-inclusive

May 1987
Establishment of Program Executive Officers (PEO)

PEO C3T
PROGRAM EXECUTIVE OFFICE COMMAND CONTROL COMMUNICATIONS-TACTICAL

CELEBRATING

30

THIRTY YEARS
OF INNOVATION

Implementation of the Goldwater-Nichols Department of Defense Reorganization Act of 1986 removed Project Managers from Army Materiel Command (AMC) control and placed them under Program Executive Officers, who report directly to the Army Acquisition Executive (the Assistant Secretary of the Army for Research, Development, and Acquisition). The command continued to provide functional services to the PEOs and their PMs under the matrix support concept. The Communications-Electronics Command (CECOM) at Fort Monmouth supported three PEOs: Command and Control Systems (CCS), Communications Systems (COMM), and Intelligence/Electronic Warfare (IEW).

PEO COMM was staffed by 250 military and civilian employees, managed more than 100 programs, and had a budget of $2.9 billion. It was responsible for PM Global Positioning System (GPS), PM Multi Service Communications Systems (MSCS), PM Mobile Subscriber Equipment (MSE), PM Position Location Reporting System/Tactical Information Distribution System (PLRS/TIDS), PM Regency Net (RN), PM Satellite Communications (SATCOM), PM Single Channel Ground and Airborne Radio System (SINCGARS) and PM Single Channel Objective Tactical Terminal (SCOTT).

PEO CCS was staffed by 364 military and civilian employees and had an annual budget of $1.9 billion. It was responsible for six PMs: PM Air Defense and Control Systems (PM AD-CCS), PM All Source Analysis System (ASAS), PM Combat Service Support Control System (CSSCS), PM Common Hardware/Software (CHS), PM Field Artillery Tactical Data Systems (FATDS), and PM Operations Tactical Data Systems (OPTADS). Three PMs were at Fort Monmouth. AD-CCS was at Redstone Arsenal, Alabama; ASAS at Fort McLean, Virginia; and CSSCS at Fort Belvoir, Virginia.

THE ITEM IN QUESTION

A U.S. Air Force F-35A Lightning II from Eglin Air Force Base, Florida, taxies down the flight line before takeoff at Tyndall Air Force Base, Florida, in December 2016. The high lifetime and per-unit costs of the fifth-generation fighter plane have drawn criticism from many, including the Trump administration. Each aircraft in the most recent batch cost less than $100 million, however, the first time that the aircraft's unit cost has dropped below that threshold. (Photo by U.S. Air Force Staff Sgt. Alex Fox Echols III)

RIDING the EXPERIENCE CURVE

There's a proven way to drive down defense acquisition costs, and it works especially well for the complex, high-tech platforms prone to big cost overruns. You've heard of it: the learning curve. It lowers costs the old-fashioned way.

by Mr. Sudhakar Arepally

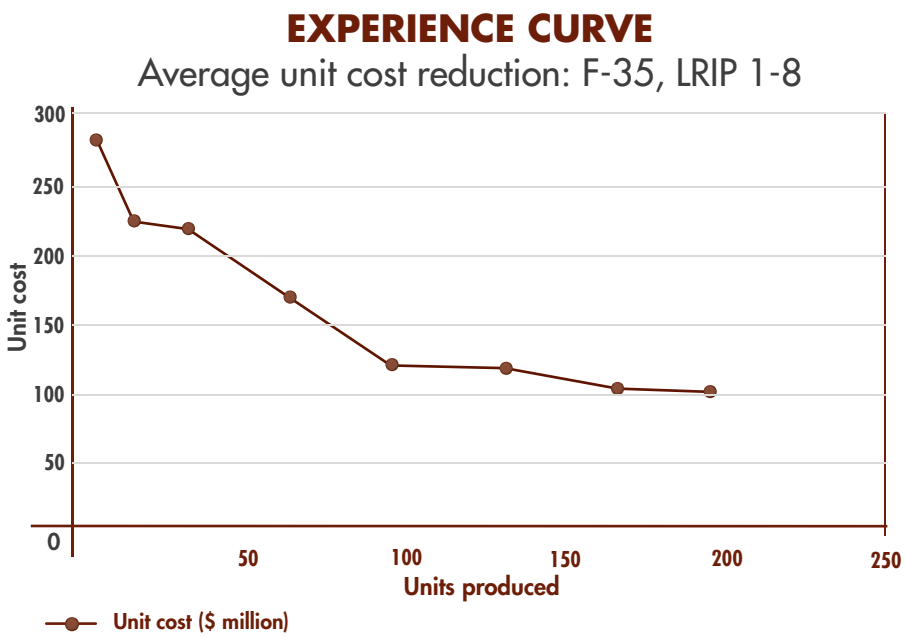
Major League Baseball's Chicago Cubs waited 108 years to finally win the World Series championship in 2016. It has not been that long—30 years or so—since the Army launched a major combat ground vehicle program, but the drought is conspicuous and frustrating nonetheless. The Army's "Big 5"—the M1 Abrams main battle tank, the Bradley fighting vehicle, the UH-60 Black Hawk, the AH-64 Apache and the Patriot missile system—all date to the 1980s. The Army's initiatives to introduce major ground combat vehicle platforms over the past 10 years—for example, Future Combat Systems and the Ground Combat Vehicle—have not succeeded.

The Army terminates acquisition programs for a variety of reasons.

Tectonic shifts in the operational capability requirements, while rare, can put the brakes on an otherwise well-managed program. So can external factors, such as political indifference and bleak economic circumstances. However, the irrevocable damage more commonly stems from unwieldy performance requirements, program schedule slips and cost overruns. Mostly, the underlying causes are unanticipated vehicle engineering, developmental and manufacturing roadblocks and inadequate measures to mitigate risks of unproven and complex technologies. Eventually, these issues escalate to create unbearable program costs.

Fortunately there are promising approaches to manage program costs more strategically, employing pragmatic economic principles and enforcing a long-term business view. One of these principles, recognized in the 1940s and widely used in the manufacturing industry today, is the experience curve, sometimes referred to as the learning curve. Put simply, it describes this economic advantage: A firm that produces a complex product over time learns the process and thus is able to improve both productivity and performance across its functions and operations. This learning, in turn, enables the firm to reduce the unit cost of the product, as its cumulative production volume doubles over time. In general, firms that perform complex design, engineering development and manufacturing activities derive the most benefit from the experience curve.

FIGURE 1



MAPPING THE DECLINE IN UNIT COST

This experience curve shows the average per-plane cost reduction for the F-35 Lightning II from LRIP 1 to LRIP 8. The more units produced, the less each unit costs, as the manufacturer gains expertise over time. (SOURCE: Sudhakar Arepally, Office of the Deputy Assistant Secretary of the Army for Defense Exports and Cooperation (DASA(DE&C))

HOW THE CURVE WORKS

There is ample and compelling evidence of the learning curve's benefits to the manufacturing industry. As far back as World War II, aircraft manufacturing costs fell by roughly 20 percent because of decreases in labor hours each time the production volume doubled. Numerous generalized studies of other industries have corroborated the experience curve's ability to reduce costs by anywhere from 5 to 30 percent.

More recently, a report on the F-35 Lighnting II, a fifth-generation fighter aircraft recognized for its advanced stealth capabilities, speed and agility, stated that more efficient manufacturing methods and processes would help drive down the per-unit cost of the fighter plane by $10 million by 2019. The manufacturer, Lockheed Martin Corp., attributes the improved methods and processes to continuous improvement initiatives. In a validation of the experience curve, Lockheed Martin stated that for the low-rate initial production (LRIP) 8 contract award, the average unit price of the airframes for the three F-35 variants was 3.6 percent lower than the LRIP 7 price.

Analysis of the cost data reinforces the merits of the economic concept. Plotting the actual F-35 cost data released by Lockheed Martin against the production run, a steep reduction in the unit cost is evident early in the production run but gradually levels off. (See Figure 1.) Such a trend indicates not only the immediate impact of economies of scale—another economic principle that states that doubling the input more than doubles the output—but also exhibits the tremendous learning potential in a nascent production facility. However, as operations become mature and streamlined over time, the possibilities for realizing efficiencies decline.

BIG TANK, BIG COST, BIG LEARNING-CURVE POTENTIAL

This Abrams tank from the 1st Armored Brigade Combat Team, 3rd Infantry Division, shown here in a December 2016 aerial drone image at Fort Stewart, Georgia, is one of the Army's "big five" combat platforms, all of which date to the 1980s. With multiple attempts to launch a new ground-combat platform having fallen victim to soaring costs, the learning curve could offer a simple, time-tested way to control the cost of big, complex manufactured items like the Abrams or its successor. (Photo by Master Sgt. Erick Ritterby, 3rd Infantry Division)

But it is worth highlighting the general shape of the downward slope in Figure 1, a signature characteristic of the experience curve. It can be reduced to a mathematical function known as the power or multiplicative law, represented as follows:

$$Y = f(X) = AX^b$$

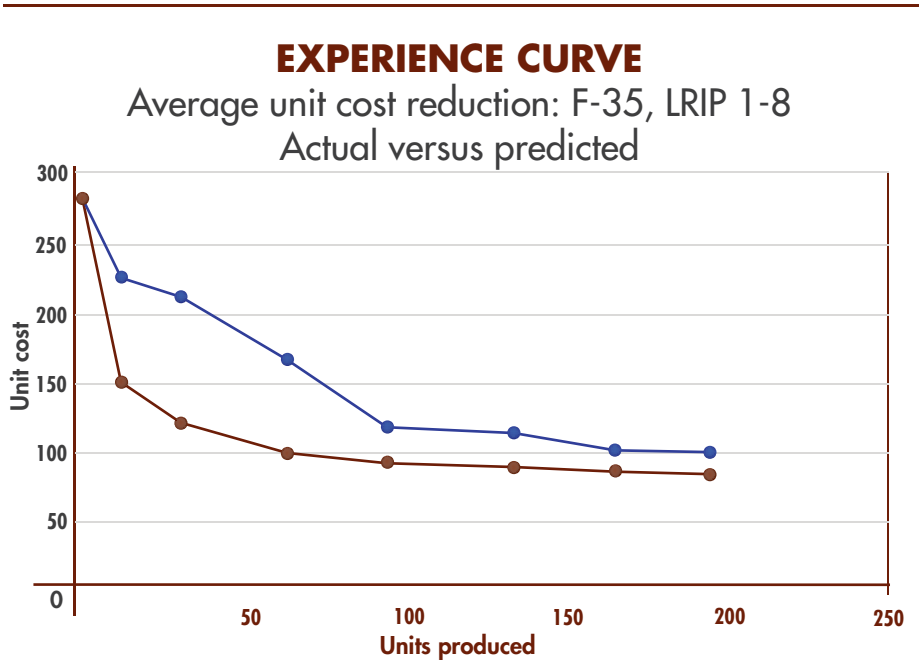
Where:
Y = average cost of unit X
A = the first unit cost
X = unit number (cumulative volume)
b = slope coefficient = $\frac{\log(\text{slope of the experience curve})}{\log 2}$

Slope of the experience curve = 2^b

A practical application of the model allows estimation of the average unit cost curve for future production units within reasonable bounds. Figure 2 on Page 22 shows the actual F-35 cost data (blue) versus the cost data estimated or predicted (red) by the mathematical model. Even though the curve profiles are similar, the differences in the absolute values are magnified in the initial production phase. It is possible that real-world situations, with effects on operations that the simple and approximate mathematical model does not reflect, might have contributed to the variation.

The experience curve is most adaptable to the production and deployment phase marked by milestone C.

FIGURE 2



PREDICTED VS. ACTUAL DECLINE

The F-35's actual cost over time, in blue, and predicted cost over time, in red, follow roughly the same downward path, but the absolute numbers are different, especially in early production. Why the disparity? The mathematical model that generates predicted data is just that—a model—and can't take into account some real-world events that can affect labor and part costs. (SOURCE: Sudhakar Arepally, DASA(DE&C))

The 15.5 percent degree of decrease in the unit cost for the F-35 case is a noteworthy output of the model. In other words, every time the F-35 production output doubles, the average unit cost decreases by 15.5 percent. (In theory, this specific curve is denoted as the 84.5 percent experience curve, 84.5 being the difference between 15.5 and 100.) This reinforces empirical evidence from numerous studies supporting cost reductions from 5 to 30 percent.

THE EXPERIENCE CURVE AND ACQUISITION

As with the F-35 fighter aircraft, the Army, too, should be able to harness the cost benefits of the experience curve. The experience curve is all the more inviting to embrace because its advantages extend beyond labor hours saved to other functions across a firm's (or service's) operations. Both fixed and variable costs offer possibilities for lowering the cost structure with organizational learning. For instance, high-volume batch orders and long-term contracts could lower procurement costs.

The Army can accelerate the cost savings by routinely deploying industry best practices—continuous improvement initiatives such as value analysis, value engineering and Lean Six Sigma—to continually reduce or eliminate waste and cut costs while improving product quality. Even management and administrative functions, the "overhead" regarded as a necessary evil among customers, tend to shrink and become minimally burdensome when these practices are rigorously applied.

With reference to the Army's acquisition process, the experience curve is most adaptable to the production and deployment phase marked by milestone (MS) C. To a lesser degree, it could benefit the system development and demonstration phase, denoted by MS B. But its prospects for the activities preceding MS A are projected to be marginal.

If we apply the experience curve approach to Army acquisition as an integral part of the broader acquisition strategy for new Army programs, then program cost management over the long term should be more disciplined. As a routine process, the acquisition team currently prepares an internal cost estimate before releasing the request for proposal (RFP) to defense equipment manufacturers before MS C. Along with several other performance criteria, the team weighs the cost parameters in the overall evaluation of contractors' bid proposals.

Given an estimated average unit cost of the first article produced (e.g., the first unit of LRIP), a series of cost curves, henceforth called iso-experience curves, can be generated using the power law model. (See Figure 3.) The iso-experience curves illustrate average unit cost reductions ranging from 5 to 30 percent (or conversely, the 95 percent experience curve to 70 percent experience curve).

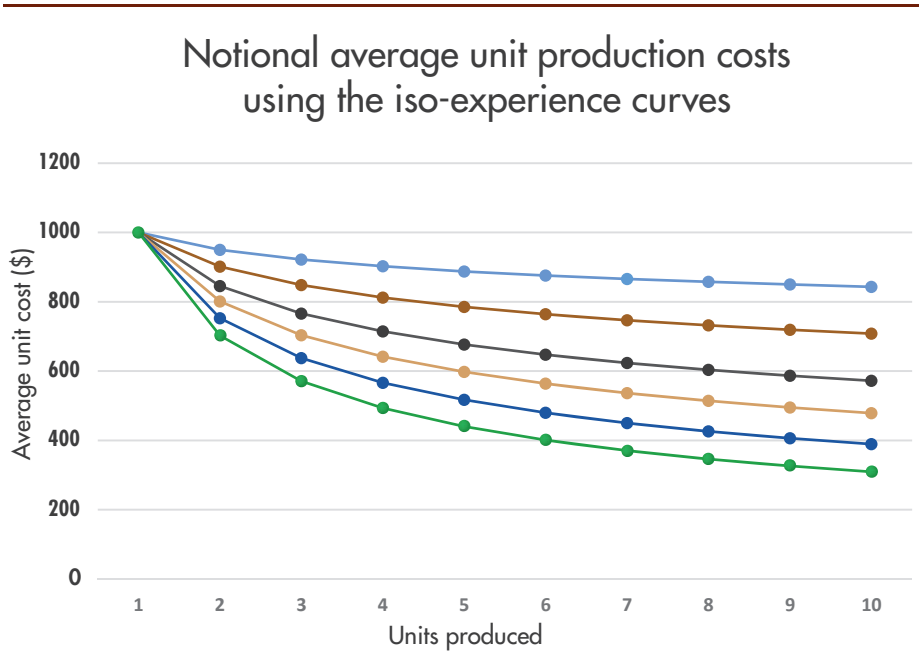
Figure 4 on Page 24 shows the experience curves for a notional production run of 10 units. To understand the calculations, let us consider the values pertaining to the 95 percent experience curve. It is assumed that the cost for the first unit is 1,000. To calculate the cost for the second unit using the model, the values of 1,000 (first unit cost), 2 (second unit),

and -0.07 (slope coefficient corresponding to the 95 percent experience curve) are assigned to the variables 'A', 'X' and 'b'. Using this information, the model produces a 'Y' value of 950. Similar calculations are employed to generate all the other 'Y' values in Figure 4, including the predictions for the 100th unit associated with the iso-experience curves.

Following contractors' bid responses to the RFP, when the source selection evaluation board begins the evaluation process, the novelty of this notional approach becomes clear. Instead of rating a manufacturer's proposal on a single, fixed-cost estimate (along with other performance criteria), the manufacturers should be required to provide projections of unit cost reductions for the future production units. The government then would compare these against its own reference iso-experience curves generated before the RFP.

Without a doubt, the data would provide an indication of the contractors' motivation to manage costs over the long run. For instance, if a contractor's proposal indicates only a 5 percent average unit cost reduction for every doubling of production output and another contractor's proposal demonstrates a 30 percent reduction, such a glaring difference in cost structure would require further scrutiny. It might also reveal how determined contractors are to pursue innovative approaches to lowering costs. Both insights are a win for the Army acquisition process.

FIGURE 3



WHAT WILL THE NEXT ONE COST?

With an estimate of what the first item will cost, a series of curves can be generated to show how the per-item cost could drop over time, assuming a likely decline from 5 to 30 percent. Studies have observed the experience curve's ability to lower per-item cost by those amounts. (SOURCE: Sudhakar Arepally, DASA(DE&C))

CONCLUSION

Defense industry manufacturers need to be aware of cost-cutting opportunities and should create an environment in which the workforce wholeheartedly embraces best practices for efficiency and effectiveness. Only then will opportunities for cost reduction come to fruition. The defense acquisition community, in turn, should recognize the long-term benefits of the experience curve in galvanizing the industrial base.

To that end, the acquisition community should take necessary measures to maintain continuity of production operations. One such approach is to balance the demand for defense articles, stretching production over longer periods as opposed to intermittent bursts of production, to avoid generally exorbitant costs of manufacturing startup and shutdown costs.

In December 2016, President-elect Trump voiced his concerns about the high acquisition costs of defense products

Firms that perform complex design, engineering development and manufacturing activities derive the most benefit from the experience curve.

FIGURE 4

Notional calculations using iso-experience curves

Cumulative Production Units	Iso-Experience Curves					
	95%	90%	85%	80%	75%	70%
1	1000	1000	1000	1000	1000	1000
2	950	901	845	801	753	702
3	922	848	766	704	637	571
4	903	812	714	642	566	493
5	888	786	677	597	517	440
6	876	764	647	564	480	401
7	866	747	624	536	450	371
8	857	732	604	514	426	346
9	850	719	587	495	406	326
10	843	708	572	479	389	309
100	711	501	327	229	151	95

1st unit cost =1000

	2^b (2 raised to the power of b)	b
95% Experience curve slope	0.95	-0.07
90% Experience curve slope	0.90	-0.15
85% Experience curve slope	0.85	-0.24
80% Experience curve slope	0.80	-0.32
75% Experience curve slope	0.75	-0.41
70% Experience curve slope	0.70	-0.51

EVALUATE THE ESTIMATE

This table shows the calculations that underlie the notional cost curves in Figure 3, assuming a production run of 10 items. One way to make the source-selection process more rigorous would be to evaluate not just the absolute cost that manufacturers propose, but how much they could lower the per-item cost over time. The manufacturers' estimates could be compared with model-generated estimates, to evaluate whether the manufacturers are prepared to fully exploit the experience curve's ability to save money. (SOURCE: Sudhakar Arepally, DASA(DE&C))

Even management and administrative functions, the "overhead" regarded as a necessary evil among customers, tend to shrink and become minimally burdensome when these practices are rigorously applied.

and singled out the F-35 aircraft. While a price drop for the F-35 was already in the works, according to defense market analysts, Lockheed Martin credited Trump with accelerating the reduction. In February 2017, the company announced an average cost reduction of 7.5 percent, or $455 million, for the government's purchase of 55 planes, compared with the previous lot. Notwithstanding Trump's conversations with Lockheed Martin, it is no surprise that the overall savings were a dividend of the experience curve.

Considering the economic concept's financial implications, future Army programs should consider the calculus early in acquisition planning. As old-fashioned as it may be, the experience curve method is a source of optimism for cost management of large and complex Army programs. Just like the Chicago Cubs, whose extraordinary preparation and performance resulted in their long-awaited victory, the Army should posture now for a win when it embarks on a new major platform. It is time to put an end to the long dry spell.

For more information, contact the author at ***sudhakar.r.arepally.civ@mail.mil*** *or 703-545-9102.*

MR. SUDHAKAR AREPALLY is on a one-year developmental assignment in the Office of the Deputy Assistant Secretary of the Army for Defense Exports and Cooperation, Arlington, Virginia. He is tasked with developing internal strategic plans. A May 2016 graduate of the Senior Service College Fellowship program, he served previously as associate director for systems engineering and analytics at the U.S. Army Tank Automotive Research, Development and Engineering Center, where he was responsible for planning, directing, reviewing and coordinating efforts in computational modeling and simulation. He also has extensive private industry experience, having worked as a senior project engineer for General Motors Co. and as a senior project engineer and program manager for what was then TRW Automotive Systems. He holds MBA degrees from Lawrence Technological University and the University of Michigan, an M.E. in industrial engineering from Tennessee Technological University and a B.E. in mechanical (production) engineering from Andhra University. He is Level III certified in engineering and a member of the Army Acquisition Corps.

ZERO to FULL MANPOWER in 8 HOURS

Predictive Resource Staffing Models make staffing a program office easier and faster. A model for the program management community is available now; models for contracting, R&D, T&E and logistics are in development.

by Ms. Rebecca Meyer

You've just been selected as the program manager for an up-and-coming system. Congratulations! Its capability promises to revolutionize the way the Soldier operates on the battlefield. It checks all the buzzwords: Lean Six Sigma, cost efficient, auditable. There's just one problem—a program management office (PMO) has not yet been established to carry out the mission, and you've been charged with developing the workforce requirement. Where do you start? How many people will you need? What skill sets will your staff require?

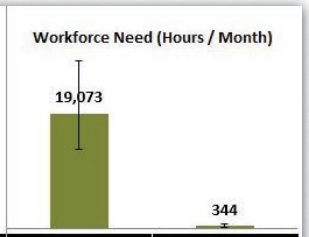
Anyone who has been in this situation can tell you that the thought of standing up a program office is daunting. You've asked around, and your fellow program managers relayed to you that they developed their staffing requirements through something called a concept plan. They mentioned that the timeline they experienced for development and approval was quite lengthy, averaging 12 to 18 months. And that doesn't include using your requirements to request resources in the program objective memorandum (POM). One program manager even told the story of the Mine Resistant Ambush

FIGURE 1

PM MODEL INPUT EXAMPLE

KEY

ACAT: Acquisition category
EMD: Engineering and manufacturing development
GFE: Government furnished equipment
MDD: Milestone development decision
MSA: Major system acquisition
OS: Operations and support
TD: Training development



Definitions	Product's Name >>>	Thunder Cat	Soldier Uniform
Upper Prediction	Upper Prediction for Workforce Need *(Hours / Month)*	27,716	756
Workforce Need	Predicted Workforce Need for Product *(Hours / Month)*	19,073	344
Lower Prediction	Lower Prediction for Workforce Need *(Hours / Month)*	13,126	156
Upper Prediction	Upper Prediction for Workforce Need *(MYEs)*	191.1	5.2
Workforce Need	Predicted Workforce Need for Product *(MYEs)*	131.5	2.4
Lower Prediction	Lower Prediction for Workforce Need *(MYEs)*	90.5	1.1
PM-O6	What PM-O6 is the product managed under?	PM Transport	PM Equipment
Life Cycle Phase	Which Life Cycle Phase should be modeled for the product?	EMD	OS
Multiphase	Should the product be modeled as being in multiple Phases?	No	Yes
Multiphase Pre-MDD	Should the product be modeled as being in Pre-MDD?		Yes
Multiphase MSA	Should the product be modeled as being in MSA?		Yes
Multiphase TD	Should the product be modeled as being in TD?		Yes
Multiphase EMD	Should the product be modeled as being in EMD?		Yes
ACAT	What is the product's ACAT?	I	Pre
Class	What is the product's Class?	Auto-Mobiles	Other Systems
Software	Which best characterizes the end item?		None of the above
Soldier	Is the product a part of the Soldier Portfolio?		Yes
Consumable	Is the end item intended for single use?		No
Mission Command	Does the product provide mission command capabilites?		No
Multiple Variants	Does the product have more than a single unique product variant?		Yes
GFEs	Does the product contain Government Furnished Equipment (GFE)?		No
User Training #	How many hours are required to train each user of the end item?		0

TELL ME ABOUT YOUR PROGRAM

By providing responses to a series of questions related to program specifics, PRSM users can compute manpower requirements in 10 minutes—a dramatic improvement over the 12 months it used to take to complete the task. (Graphics courtesy of the author)

In roughly six months, you developed the requirement, had it approved and received resources for the upcoming POM years.

Protected (MRAP) vehicle. MRAP followed the concept plan process to establish its program management office and did not receive approved workforce resources until after the program was already in sustainment. You find yourself asking, "What is this concept plan and why does it take so long?"

"Army Regulation 71-32, Force Development and Documentation" defines a concept plan as a detailed proposal to create or change units at specified thresholds. The purpose is to ensure that requirements are thoroughly reviewed and support Army objectives and priorities, and that HQDA understands the changes. In 2010 guidance, the deputy chief of staff (DCS) G-3/5/7 laid out an eight-step approach to developing, analyzing and presenting manpower staffing requirements through a cost benefit analysis (CBA). Those eight major steps would need to be completed whenever a new program was established or a current program changed significantly.

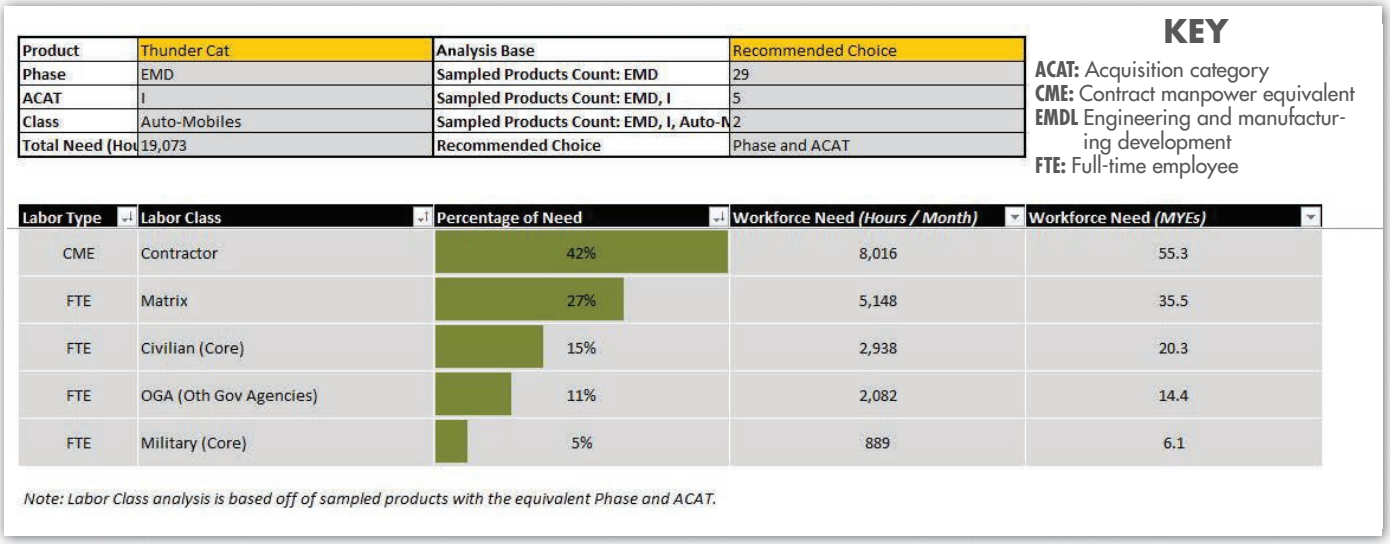
After the CBA is completed, the U.S. Army Manpower Analysis Agency (USAMAA) and DCS G-3/5/7 validation and approval are required before the requirements can be used in the Army's resourcing processes. Although the concept plan process works, it does not provide flexibility or time-sensitive results. You begin to wonder why a more streamlined process has not yet been established.

Well, you're in luck.

Your program executive office (PEO) notifies you that in 2013, the assistant secretary of the Army for acquisition, logistics and technology (ASA(ALT)) began work on a new approach to developing workforce requirements. This approach stemmed from the need to

FIGURE 2

READING THE RESULTS



Product	Thunder Cat	Analysis Base	Recommended Choice
Phase	EMD	Sampled Products Count: EMD	29
ACAT	I	Sampled Products Count: EMD, I	5
Class	Auto-Mobiles	Sampled Products Count: EMD, I, Auto-M	2
Total Need (Hou	19,073	Recommended Choice	Phase and ACAT

KEY

ACAT: Acquisition category
CME: Contract manpower equivalent
EMDL Engineering and manufacturing development
FTE: Full-time employee

Labor Type	Labor Class	Percentage of Need	Workforce Need *(Hours / Month)*	Workforce Need *(MYEs)*
CME	Contractor	42%	8,016	55.3
FTE	Matrix	27%	5,148	35.5
FTE	Civilian (Core)	15%	2,938	20.3
FTE	OGA (Oth Gov Agencies)	11%	2,082	14.4
FTE	Military (Core)	5%	889	6.1

Note: Labor Class analysis is based off of sampled products with the equivalent Phase and ACAT.

KEEPING UP WITH THE LABOR POOL

PRSM-PM provides results by labor class, as shown here, and by function, task list and combinations of all three. The system will be updated in 2019, with subject matter experts working to ensure that the tasks and workload drivers still accurately reflect the community and the model still accurately projects program workforce requirements.

provide flexibility for different levels of programs, identify future requirements and accommodate human resource challenges. From this, the Predictive Resource Staffing Model (PRSM) was born.

DATA IN, FORECAST OUT

PRSM is a suite of five functional-based models developed to provide Army leaders with validated tools to inform resourcing decisions at both the organizational and agency levels. The model outputs, based on sound statistical analysis and input from functional communities, forecast the manpower requirements needed to support Army acquisition programs. Functional areas include program management, contracting, research and development (R&D), test and evaluation (T&E), and logistics.

Each functional PRSM is developed individually, based on the critical factors and workload drivers most relevant to the population being modeled. Workload factors and drivers are determined based on the organization's mission, input from functional subject matter experts, policy, business processes and workload trends.

Remember those eight major steps required to build the concept plan? They're completed on the front end of PRSM, during model development, allowing the user to employ a simple process and receive outputs in minutes. Like the concept plan, the models are validated by USAMAA and outputs are approved by DCS G-3/5/7. Best of all, once a PRSM model has been validated, it replaces the need for a concept plan.

"The PRSM – Program Management model has greatly improved the process of obtaining approval for manpower requirements," said Vincent Dahmen, a cost analyst at the PEO for Ammunition. "Because the output of the model is accepted and respected by all of the stakeholders, the user doesn't have to start from scratch with new analysis every time there is a change to the organizational structure." Models predicting the workforce for contracting, R&D, logistics and T&E are in development; the model for program management was completed and validated for use by USAMAA in 2015.

Your PEO's manpower analyst sends you a copy of the model and mentions that you'll need to provide the outputs by close

FIGURE 3

BUILDING FROM A CLEAN SLATE

Product	Thunder Cat	Analysis Base	Recommended Choice
Phase	EMD	Sampled Products Count: EMD	29
ACAT	I	Sampled Products Count: EMD, I	5
Class	Auto-Mobiles	Sampled Products Count: EMD, I, Auto-N	2
Total Need (Hou	19,073	Recommended Choice	Phase and ACAT

KEY

ACAT: Acquisition category
EMD: Engineering and manufacturing development
MDD: Milestone development decision
MSA: Major system acquisition
OS: Operations and support
TD: Training development

Task ID	Function	Task	Labor Class	Percentage of Need	Workforce Need *(Hours / Month)*	Workforce Need *(MYEs)*
10.01	Program Management	Develops, Coordinates, and Provides/Presents Program	Matrix	2%	427.9	3.0
10.01	Program Management	Develops, Coordinates, and Provides/Presents Program	Civilian (Core)	2%	392.0	2.7
5.01	Test (DT / OT)	Develops Developmental Test (DT) Strategy (Includes Technical Testing	Matrix	2%	360.9	2.5
4.08	Execute / Manage Contract	Evaluates Contract Deliverables (e.g., Reports, Technical Documents,	Matrix	2%	354.9	2.4
13.05	Technical Management / Systems Integration	Conducts System Engineering Management Activities	Matrix	2%	309.0	2.1
13.05	Technical Management / Systems Integration	Conducts System Engineering Management Activities	OGA (Oth Gov Agencies)	2%	306.5	2.1
4.08	Execute / Manage Contract	Evaluates Contract Deliverables (e.g., Reports, Technical Documents,	OGA (Oth Gov Agencies)	2%	305.4	2.1
13.04	Technical Management / Systems Integration	Conducts Technical Reviews	Matrix	2%	295.2	2.0
10.01	Program Management	Develops, Coordinates, and Provides/Presents Program	Military (Core)	1%	237.1	1.6
5.02	Test (DT / OT)	Executes DT (Includes Technical Testing and Other non-IOT&E events)	Matrix	1%	223.4	1.5
13.04	Technical Management / Systems Integration	Conducts Technical Reviews	OGA (Oth Gov Agencies)	1%	209.2	1.4
13.06	Technical Management / Systems Integration	Evaluates Test Results and Protocols	OGA (Oth Gov Agencies)	1%	208.6	1.4
14.06	Logistics	Conducts New Equipment Training (NET)	Matrix	1%	199.0	1.4
16.01	Personnel Management / Supervision	Accomplishes Personnel Management and Supervisory Tasks. (NOTE: This task	Matrix	1%	185.1	1.3
16.01	Personnel Management / Supervision	Accomplishes Personnel Management and Supervisory Tasks. (NOTE: This task	Civilian (Core)	1%	151.7	1.0
11.04	Operations	Performs Personnel Tasks	Civilian (Core)	1%	150.7	1.0
4.08	Execute / Manage Contract	Evaluates Contract Deliverables (e.g., Reports, Technical Documents,	Civilian (Core)	1%	149.0	1.0
12.08	Business Management	Performs Budget Year Funding Execution	Civilian (Core)	1%	147.2	1.0
13.05	Technical Management / Systems Integration	Conducts System Engineering Management Activities	Civilian (Core)	1%	138.2	1.0

Note: Task LC analysis is based off of sampled products with the equivalent Phase and ACAT.
Note: Task LC analysis does not include CME workload as Functions were not reported by CMEs.

NEW PROGRAM? NOT A PROBLEM.

Each functional PRSM is developed individually, based on the critical factors and workload drivers most relevant to the population being modeled. The sourcing model has proven easily adaptable to new programs, overcoming the challenge of not having comparable manpower requirements to serve as a baseline.

"The PRSM – Program Management model has greatly improved the process of obtaining approval for manpower requirements."

of business today. The PEO is getting ready to submit manpower requirements for this POM and wants to make sure your requirements are included. This gives you less than eight hours to provide the staffing requirement that took your peers 12 months to develop.

You also have some concerns that the model won't work for your program, as it's a new start developing a previously unseen capability. Teresa Gonda, director of organizational development and competency management at the PEO for Ground Combat Systems (GCS), has encouraging news on this point: "The real value of PRSM is in seeking requirements for new starts. PEO GCS is kicking off several programs in the next two years and has started using PRSM, with some innovative new processes in the

Army, to help justify the requirements." Normally with a new start, there is no analogous system to compare staffing baselines, so PMOs struggle with deriving manpower requirements. You hope this PRSM model is as simple and effective and provides results as quickly as advertised.

WHAT DRIVES THE MODEL

When you open the model, you find PRSM – Program Management (PRSM-PM) is built around a list of program management tasks and a set of workload drivers developed by the PEO community. You remember hearing about this back in 2014, when a sample set of users in the PEOs was asked to record workload time (actual time spent completing a task) against the task list for three months. Regression analysis performed on this data was used to develop the model you'll be using today. Working with the model is straightforward: You answer a series of questions based on program schematics, including acquisition category, life cycle phase, use of government-furnished equipment and system type, among others. (See Figure 1, Page 26.) These questions are the workload drivers—pieces of information that combine to tailor the model to your program and are changed to meet emerging mission requirements. Within 10 minutes, you've entered all the required information into PRSM and have computed your manpower requirement.

You scroll through the various output reports PRSM-PM provides, viewing the results by labor class (contractor, civilian, matrixed personnel—functional support provided by another command—military, and other government agency personnel); function (business management, engineering, program management); task list; and combinations of all three. (See Figure 2, Page 27, and Figure 3.) You can see the number of man-years

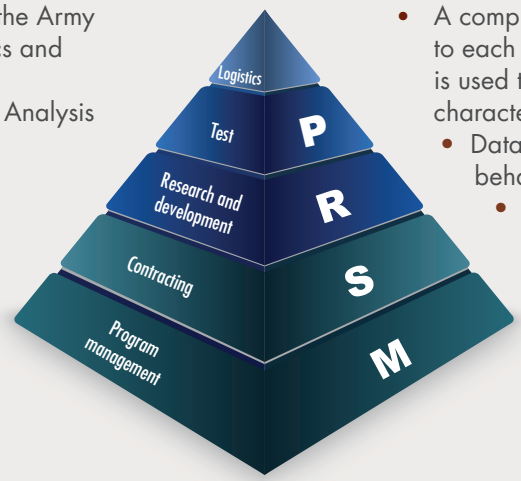
PRSM at a Glance

What is PRSM, and what does it cover?

- A suite of models that forecast manpower requirements across the acquisition community for specific functional areas.
  - Covers contracting, logistics, program management, research and development, and test and evaluation functions.
  - Forecasts manpower requirements for civilians (core and matrix), contractors, military and other government agencies' personnel.

Who are the stakeholders?

- Functional communities.
- Assistant secretary of the Army for acquisition, logistics and technology.
- U.S. Army Manpower Analysis Agency.
- Deputy chief of staff, G-3/5/7.



Why are PRSM models needed?

- Inform Army planning processes (e.g., program objective memorandum, Total Army Analysis).
- Assist organizations with strategic planning, staffing, training and recruitment.
- Provide flexible, efficient and effective means of developing a strong base of manpower requirements.
  - Validated models significantly reduce reliance on concept plans, ultimately increasing competitive edge for authorizations.
- Help to identify manpower supply and demand gaps.

How are the models developed?

- A comprehensive data set, including hours related to each task, surveys, interviews and focus groups, is used to determine the workforce and workload characteristics.
  - Data are grouped logically in accordance with behavioral commonalities.
    - Regression analysis is applied to the aggregate data set to produce predictive outputs.

This approach stemmed from the need to provide flexibility for different levels of programs, identify future requirements and accommodate human resource challenges.

you'll need in your PMO as well as the functional divisions and the tasks each will need to carry out. You feel relieved. Not only have you been able to calculate your manpower requirement, but you're confident that you'll be able to match the right people to the required skill sets. All that's left to do is submit your requirements.

Your PEO provided a PowerPoint template to package your outputs. You copy and paste a few of the output reports, provide some narrative about your program and submit your requirements to the PEO analyst.

Over the next few months, you find that this validated requirement has been approved by DCS G-3/5/7, used in the Army's civilian Total Army Analysis processes, submitted to the Program Evaluation Group for resourcing, and later used to develop your program's Table of Distribution and Allowances and matrix personnel support agreements. In roughly six months, you developed the requirement, had it approved and received resources for the upcoming POM years. The PRSM timeline proved to be much more streamlined and efficient than that of the concept plan.

ANNUAL UPDATES

This isn't the last time you'll see PRSM. Every year you'll use it to update your requirements as your program transitions. "PEO GCS uses PRSM both in the annual forecasting process and in standing up new programs," Gonda said. "At the beginning of the annual forecasting process, PEO GCS looks out seven years at the budget cycle and uses PRSM to anticipate fluctuations in programs. Then, supervisors perform a detailed troop-to-task estimate in each program and come together in functional competency groups. They compare results to PRSM, look for trends and issues and see where they can find efficiencies across the PEO."

You may not use the same in-depth review process as PEO GCS, but you'll definitely be using PRSM to approve your manpower requirements on an annual basis as part of the POM. Furthermore, you'll have a chance to share your thoughts on the model and enhance its capabilities: You've received word from your PEO that PRSM-PM will undergo an update in 2019. Another group of subject matter experts from the PEOs will come together to ensure that the tasks and workload drivers are still representative of the community and that the model still accurately projects program workforce requirements given the current environment, and to provide recommendations on how the model can better support PMO reporting requirements.

CONCLUSION

The PRSM models might look different for each functional community, but the usability and incorporation into Army processes remain the same. This is good news across the Army for those doing just what you're doing. For the first time, the Army is able to develop consistent and reliable workforce requirements in a timely manner, reflecting the most current Army strategy. The requirements can be updated at any time to support what-if drills and programmatic changes.

There are still many conceivable refinements to the PRSM suite to make it a more robust set of tools, and the Army needs your help in making those improvements. The models require your subject matter expertise in Army missions, processes and community operating procedures to develop successful outputs.

For more information, contact the author at ***rebecca.s.meyer10.civ@mail.mil****.*

MS. REBECCA MEYER is a program support specialist for the deputy assistant secretary of the Army for plans, programs and resources. She holds an M.S. in cost estimating and analysis from the Naval Postgraduate School and a B.S. in mathematics from the Richard Stockton College of New Jersey. She is Level II certified in program management and business – cost estimating.

GROUND TRUTH

TALENT MANAGEMENT in LEAN TIMES

Lessons in working with what you have and building what you don't

by Mr. Kevin Guite

To prepare for likely staff shortages in particular areas of expertise, the PMs can identify affiliated organizations that could fill the gaps and explore ways to "borrow" staff for the rapid acquisition.

The past several years have been a tricky time for hiring, developing and retaining good people. With less money to spend, less leeway to hire and yet urgent needs for specific knowledge, Army acquisition program managers have had to think creatively to train their workforces, leverage existing expertise across organizations and compete for the brightest young minds. It is those bright minds, after all, who keep the programs running effectively and on schedule to deliver products on time and within budget to the Soldiers who need them as fast as possible. The Army Acquisition Lessons Learned Portal (ALLP) offers some clues to overcoming these challenges in talent management, with a variety of real-world lessons and best practices. Some of the following lessons from the ALLP are about training proactively, for example, and capitalizing on resources available from aligned organizations. On the downside, other lessons illustrate how programs can suffer when they lack personnel with the necessary expertise.

TRAIN FOR THE FUTURE

LL_642: The execution of an internal program to train and develop interns will significantly enhance the overall effectiveness of the command, as well as build future workforce expertise.

Background

For five years starting in 2008, the Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) operated the Acquisition Academy to grow its own talent as a solution to the paucity of available contracting personnel. The 11-week, multidisciplinary, immersive program developed interns' knowledge and skills in preparation to join the workforce with a better understanding of the Army, the PEO's mission and what the systems it produces mean to the Soldier. The academy, supported in part by the Defense Acquisition Workforce Development Fund (Section 852), was the first stage of each intern's two- or three-year development program.

A single academy class was conducted each year from 2008 through 2013, with two sessions offered in 2009. An average of 17 interns were enrolled per class over the years, with the initial session in 2008 having the highest attendance at 21 interns. With more than 100 graduates, the academy enjoyed a retention rate of 93 percent, providing the PEO with newly hired journeyman employees. The academy was popular with participants, and that reputation ultimately led to academy graduates representing 14 percent of the PEO's workforce following their transition as journeyman employees.

The first academy class consisted solely of contract specialists, with a curriculum focused heavily on those skills. Subsequent classes had a broader focus, mirroring the workings of an integrated product team (IPT), which allowed the interns to work together in their functional training and gain insight into all acquisition disciplines. Thus they could appreciate the complexity of each discipline and become critical thinkers and effective communicators and problem-solvers in an IPT.

The benefits of such a program are not just the intensive intern training. The PEO's senior engineers, contracting officers, project directors, financial analysts and logisticians delivered much

SHARING SKILLS FOR SUCCESS

Soldiers from the 82nd Airborne Division use the WIN-T JNN, left, and Satellite Transportable Terminal, right, during an expeditionary network demonstration in March 2016 at Fort Bragg, North Carolina. The rapid acquisition of JNN-N, which developed into WIN-T Increment 1, is an example of how a thinly staffed initiative leveraged staff and expertise from other organizations to get a needed capability to the warfighter in less than a year. (U.S. Army photo by Amy Walker, PEO for Command, Control and Communications – Tactical (C3T) Public Affairs)

of the training, requiring them to brush up on the latest policies and to develop briefings for the interns. This knowledge refresher further enhanced their skill sets and those of their team members.

PEO STRI postponed additional academy classes in 2014 but has recently kicked off discussions to reinstitute the program in FY18 to fill functional shortages and gaps in the workforce. The next class will be conducted on a smaller scale, with eight interns, and will once again leverage Section 852 funds to cover salaries for the new employees in its critical functional areas.

Recommendation

Any PEO could use an acquisition-academy type of program to help ensure an adequately staffed, high-quality, educated and motivated workforce.

LEVERAGE OTHER ORGANIZATIONS' SKILLS

LL_772: To overcome the challenges of staffing a program office for rapid acquisition, outsource activities to related organizations when additional help is needed. (SOURCE: Army-contracted RAND Corp. study, "Rapid Acquisition of Army Command and Control Systems," June 2014)

Background

The Joint Network Node – Network (JNN-N), which provided a communications transport capability based on commercial off-the-shelf equipment and commercial satellites, has earned a reputation as a successful rapid acquisition. Less than a year after the submission of an operational needs statement in 2004, the JNN-N delivered greatly enhanced beyond-line-of-sight communications capabilities to the warfighter. Furthermore, the capability was fielded to almost the entire Army within five years.

The rapid acquisition of JNN-N occurred despite a number of challenges, including staffing. Initially the JNN-N program office had a team of only five or six people, which could not generate the many layers of required documentation and perform other critical duties, such as securing releases, that a traditional acquisition program demands. So the staff outsourced some of these activities to other organizations, such as the U.S. Army

THE MANY DIMENSIONS OF LEADERSHIP

Top-performing company-grade officers, warrant officers and noncommissioned officers from 18 organizations across the Pacific theater gather in January 2016 aboard the USS Missouri at Pearl Harbor, Hawaii, for graduation from the Young Alaka'i leader development program. The program aims to develop leaders who have the regional expertise to engage confidently with senior leaders and the cultural awareness to work effectively with multinational partners—qualities necessary for successful acquisition programs as well. (U.S. Army photo by Master Sgt. Mary E. Ferguson)

Communications-Electronics Research, Development and Engineering Center, when necessary.

This initial supplementation of staff allowed the program office to grow over time as JNN-N increased in scale and moved toward becoming a program of record, Warfighter Information Network – Tactical (WIN-T) Increment 1. By late 2009, the WIN-T Increment 1 product office employed over 200 staff members directly and about 125 contractors and "fielders" supporting the product office's work.

Recommendation
Program managers (PMs) planning for a rapid acquisition can and should anticipate possible staffing challenges. To prepare for likely staff shortages in particular areas of expertise, the PMs can identify affiliated organizations that could fill the gaps and explore ways to "borrow" staff for the rapid acquisition. By outsourcing, the PM can prevent problems that otherwise would halt a program schedule.

LL_415: International acquisition teams should be trained and equipped with the cultural skills relevant to their program. DOD resources are available to help develop cross-cultural acumen. (SOURCE: "Are You Ready for an International Program?" Defense AT&L, July-August 2013)

Background
Cross-cultural acumen—the ability to understand and engage effectively with people from cultures different than our own—is vital to most international programs. Without accounting for cultural differences, it is difficult to establish the trust and credibility necessary to build international relationships.

International partners might not understand U.S. Army processes, regulations, policies and laws and how they often constrain the choices that acquisition professionals make. Likewise, Americans often don't understand some of the national constraints on our overseas partners. The different lens through which each of the partners views the acquisition program has significant implications for the content of acquisition products.

A good example is the design of an operator training program for a Middle Eastern country's air force. The American model for training U.S. Air Force operators typically would involve a highly structured course with a linear sequence of instruction that allots little or no time to building personal relationships. On the other hand, a Middle Eastern country's preferred approach to cross-cultural learning might focus more on how its culture interacts and learns in a group setting. In fact, relationship building should come before conducting any serious business. In one case, cultural ignorance of the importance of these relationships caused such an erosion of trust that it essentially halted a relatively large program for a few years. Regaining this trust and credibility is not easy.

The U.S. Air Force Special Operations School at Hurlburt Field, Florida, teaches cross-cultural communication courses and has proved to be a valuable tool in helping prepare for international interactions. Training like this would be a useful part of the orientation for new hires.

Recommendation
Like the operational community, international acquisition teams should be trained and equipped to appreciate and respect cultural differences that they might encounter in their programs. Many resources are available within DOD that teams can use, including courses, research papers, briefings and subject matter experts. Air University devotes a website (**http://www.au.af.mil/culture/usgov.htm**) to cross-cultural understanding that includes links to sociocultural and language resources maintained by other services, DOD and other federal agencies such as the U.S. Department of State and the Peace Corps.

Another helpful tool, at the beginning of an international acquisition program, is a formal stakeholder analysis to provide insights into what interests the key partners in the program and what drives them. The tool can capture the plans and priorities of each participating nation and highlight areas where there is potential alignment to pursue a cooperative or collaborative effort. Don't assume that newcomers to the international partners program will have the same interests and motivations as their predecessors.

The country desk officer at DOD's in-country Security Cooperation Office, which typically works closely with host nation officials and their staffs, can help acquisition professionals get to know the foreign partner and understand its processes, needs and priorities. Another valuable resource is each service's international program office.

PUT THE RIGHT PEOPLE IN PLACE

LL_879: PMs who need more Level III-certified personnel with practical experience working the entire acquisition process would benefit from a structured development program.

Background
A constant challenge for Army acquisition PMs is having sufficient personnel who are Level III certified in the acquisition career fields. It is critical that the PM's staff have applied, not just scholastic, knowledge. One PEO's hiring and development process brought people in at an entry-level pay grade (GS-3) and promoted them (typically through GS-11) as they demonstrated ability and gained practical experience in varying roles. The PMs would assign new hires first to acquisition category (ACAT) III projects and later permit them to work on ACAT I programs as they developed experience and expertise. The PM placed great value on logistics experience and knowledge because many issues in the acquisition process continued from cradle to grave. Developing people using this approach nurtured awareness of what "logistics" really entails.

Recommendation
If you can't find people with Level III certification and applied knowledge, begin to develop them yourselves. Program offices should welcome the addition of less experienced members of the workforce and nurture their development through assignments on different aspects of Army acquisition programs. Allow these new team members to advance as they add to their expertise through work on a variety of tasks throughout the program management office. Starting a pipeline of homegrown talent will ultimately serve many programs within the Army.

LL_1078: Having the appropriate personnel in the program management office (PMO), functional proponency office and contract support is key for program success.

IT TAKES ALL KINDS
As numerous Army acquisition lessons learned demonstrate, managing talent to build successful programs means finding and keeping the right people with the right skills, experience and awareness to overcome each program's unique challenges. (Image by U.S. Army Acquisition Support Center/ArchOneZ/iStock)

Background
Personnel challenges affecting management at multiple levels within an Army PMO and its functional proponent caused poor coordination across the program, making it hard to create a collaborative and productive work environment. Some leaders lacked appropriate skills, such as expertise in enterprise resource planning (ERP) systems, ACAT I programs and information technology systems, while others had poor management skills. Management was seen as micromanaging, unable to organize the workforce needed to accomplish the tasks and unwilling to take risks. The perception was that it did not plan well for the future of the program and that it sent representatives to meetings without delegating the appropriate authority to them.

When the program began, the personnel on board did not have experience with ERP programs and did not look to other ERP programs for guidance. There was no plan for acquiring the necessary personnel for the PMO, and only 14 of 33 spots in the Table of Distribution and Allowances were filled as DOD hiring and grade freezes and sequestration prevented the PM from hiring, moving or promoting personnel for several years. Program challenges during that time frame included development and testing of initial system increments, source selection for a follow-on increment and

Any PEO could use an acquisition-academy type of program to help ensure an adequately staffed, high-quality, educated and motivated workforce.

the compilation of 20 acquisition documents to support the upcoming milestone B decision. Most of the PMO staff were supporting all three of these actions in parallel.

Once hiring could take place, the PMO hired several research and development personnel contracted earlier using federal funds, and transitioned systems engineering and technical assistance contractors to government civilian employees. Hiring practices, such as veterans' preference, caused delays as the PMO had to go through the difficult process of denying veterans who applied for the jobs but were not necessarily qualified.

The PMO also had trouble getting appropriately experienced personnel from the functional proponent. The PMO needed technical subject matter experts from the legacy systems who understood how to generate, manage and store the data. However, the functional proponent provided end users who could interface with the source systems and had an operational perspective on their use but did not understand the underlying structure and processes. As a result, the program needed the reachback capabilities of legacy contractors, who usually have no incentive to support the new program. Fortunately, some legacy system personnel relocated to the PMO and were able to reach back to the legacy contractor to acquire required information.

The program also faced cultural challenges with senior leadership in the Office of the Secretary of Defense (OSD) and various Army components. When the program was initiated, an OSD office not only had control of the program's requirements, but also oversaw its acquisition, serving as both the milestone decision authority and the overarching integrated product team lead. Because of that office's previous involvement in the legacy program as well as its knowledge of business systems, elements of the office were inclined to scrutinize areas of the Army program and micromanage some of the PMO staff. Additionally, there were disagreements among the Army components on how to merge the three cultures and their different business practices. Despite their differences, the program ultimately brought the three components to agreement, standardizing their business practices and integrating the various data and processes into a single personnel and pay system.

Recommendation

Acquisition programs need to have the right people in the right places, including leaders with the appropriate personality traits and management skills (collaborative, communicative, willing to delegate authority). Programs need a plan for acquiring qualified personnel with the appropriate expertise. Since it can be challenging to induce qualified personnel to relocate to join new programs, it may be necessary to allow personnel to work remotely. In addition, the PMO needs to tackle cultural issues among program personnel at the beginning of the program's life cycle.

After more than three years as a regular feature in Army AL&T magazine, this "Ground Truth" column of Army acquisition lessons learned concludes the series. "Ground Truth" first appeared in April – June 2014 to offer our readers lessons learned that the Army had collected via its ALLP. Since then, it has proved a popular feature. Based on readers' nominations, "Ground Truth" was the runner-up for the magazine's 2015 ALTies Award for best article. (See "Ground Truth: Harnessing lessons learned through Better Buying Power initiatives," April – June 2015.)

The Center for Army Acquisition Lessons Learned in the Acquisition Support Branch of the U.S. Army Materiel Systems Analysis Activity, which launched the ALLP in October 2012, is relinquishing the mission of analyzing acquisition lesson submissions as the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology re-evaluates its processes for gathering and applying lessons learned. Possible capabilities to replace the ALLP are under discussion.

MR. KEVIN GUITE is a lead operations research analyst with the U.S. Army Materiel Systems Analysis Activity, Aberdeen Proving Ground, Maryland. He holds an M.S. in computer science from the University of Maryland Graduate School and a B.S. in computer science from the University of Maryland, Baltimore County. He is Level I certified in program management and Level III certified in engineering. He has been a member of the Army Acquisition Corps since 2008.

Ready for WINDOWS 10?

CB25

PROCURE LAPTOPS, DESKTOPS, AND MORE WITH

CONSOLIDATED BUY!

OPENS JUNE 2017!

- WINDOWS 10 ARMY GOLDEN MASTER PRE-INSTALLED
- DISCOUNTED PRICES
- SATISFIES AR 25-1 REQUIREMENT

US ARMY PEO EIS
PEO Enterprise Information Systems

ARMY CHESS
COMPUTER HARDWARE, ENTERPRISE SOFTWARE AND SOLUTIONS

VISIT HTTPS://CHESS.ARMY.MIL/CONTENT/PAGE/CB_OVR
OR CALL 888-232-4405 FOR ADDITIONAL INFORMATION.

LOOKING OVER THE HORIZON

Soldiers assigned to 1st Brigade Combat Team, 1st Armored Division scan for potential enemies during Decisive Action Rotation 17-02 at the National Training Center on Fort Irwin, California, in November 2016. The Army's Talent Management Task Force is piloting several initiatives to move from a system in which Soldiers were viewed as interchangeable parts to a modern system that incorporates individual knowledge, skills and behaviors shaped over a lifetime. (Photo by Spc. Michael Crews, National Training Center Operations Group)

MEETING GLOBAL DEMAND

The Army's new director of operations at the Rapid Capabilities Office arrived at his post from the Army's Talent Management Task Force. He discusses how the Army views, gets and keeps the talent it needs.

by Ms. Nancy Jones-Bonbrest

After spearheading the Army's Talent Management Task Force since May 2016, Maj. Gen. Wilson A. "Al" Shoffner Jr. joined the Army Rapid Capabilities Office (RCO) as director of operations in April. At first glance, there may not seem to be an obvious link between his former assignment and his new one. After all, one is focused on maximizing individual capability to meet Army personnel needs, while the other is focused on expediting critical technologies to the field to counter urgent and emerging threats. Yet a closer look suggests comparisons. Both entities were launched to provide a bridge between what exists and what is needed so that the Army can meet the nation's current and future security demands.

For the Army's Talent Management Task Force, this work centers on integrating and synchronizing efforts to create a more deliberate talent management system. The task force knows that the Army must evolve rapidly from an industrial-age personnel system to keep pace with today's best practices.

In much the same way, the RCO rejects a one-size-fits-all approach to modernization. Recognizing that today's threats are evolving faster than the traditional acquisition process can often support, the RCO is tailoring solutions and delivering prototypes to the field. By using prototypes, the Army can focus capabilities as small-scale, threat-driven projects that it can deliver to Soldiers for rapid deterrence and feedback. Maybe the capability helps evolve a program of record for the full Army, or maybe the Army

moves on to a newer, better technology. Either way, it knows quickly in which direction to move, and it can move faster.

We asked Shoffner, a few days into his new job as RCO director of operations, if he would be willing to share his insight into talent management as well as his expectations for the RCO. Without hesitation, he took the opportunity to address the link between the two communities and introduce himself to the world of acquisition.

Nancy Jones-Bonbrest: You came to the Army Rapid Capabilities Office after serving as director of the Army's Talent Management Task Force, and as part of a long operational career. How has your previous experience shaped your view of Army acquisition?

Shoffner: I'll answer that question in two parts. For the first, I'll reflect back on some of my operational experiences in both Iraq and Afghanistan. I think it is becoming increasingly obvious that over the past 15 years, we as an Army have been focused on winning the current fight, and during that period of time our [traditional] adversaries [e.g., Russia, China] have taken advantage of our focus being elsewhere. They have started to develop capabilities that really get at our core strengths.

MANAGING CAPABILITY AND TALENT

Soldiers from Field Artillery Squadron, 2nd Cavalry Regiment conduct new equipment training on the Counter – Unmanned Aircraft System Mobile Integrated Capability at Grafenwoehr Training Area, Germany. The training, conducted in February and March, put rapidly produced prototypes into the field to close capability gaps of the kind targeted by the Army RCO. Shoffner sees parallels between the kinds of solutions the RCO is seeking and the Army's interest in new talent management solutions. (Photo by Sgt. Devon Bistarkey, 2nd Cavalry Regiment Public Affairs)

Also, over the past couple of decades, the rate of change for technology has increased. It's not just Moore's Law, where every 18 months the processing power doubles—it's even faster than that. And so if you think about those two factors taken together, that's what has resulted in us being in the situation we are in now, where there are some gaps between what we need to be able to do and what our adversaries are able to do. So the Rapid Capabilities Office has been established to help mitigate those gaps. We also have to do more than that; just closing those gaps is not enough. We've got to make sure we don't find ourselves in this position five, 10, 20 years from now.

Fundamentally, on talent management, what we are trying to do is move from an industrial-age system where we looked at people as interchangeable parts to a modern, 21st-century system where we are managing individual talent. One of our strengths as a nation for so long has been our ability to innovate and innovate faster. So as it relates to the acquisition community, we are looking to people who have that innovative spirit and who can help us figure out how to close those gaps in short order without having to wait seven to 10 years to field a new system. That's why, with the Rapid Capabilities Office, what we are looking to do is to prototype systems to get them out there very quickly, to get them out to exercises and learn from those experiences so we can make adjustments and field the systems as quickly as possible.

Jones-Bonbrest: What did you learn at the Army's Talent Management Task Force that can be applied to the Army Acquisition Workforce?

Shoffner: I'll start with how we define talent in the Army. We don't see talent as one single thing that you can put your finger on. It's the combination of a lot of things—it fundamentally is the combination of an individual's knowledge, skills and behaviors. Key to this, though, is that these are shaped over a lifetime. It does include experiences people have in the military, but also includes all the experiences they have outside the military: where they went to school, where they grew up. It's what their hobbies are, what they are passionate about, how they think. The thinking part is really, really important. Obviously we can measure cognitive ability. We have tests, assessments that get after noncognitive ability, but what we are really looking for are people who are critical thinkers, people who are innovators

and people who have nonlinear problem-solving skills.

As you think about the acquisition workforce, we know those skills and talents are out there. In some cases, it may not be someone who is a DA civilian, it may not be somebody wearing a uniform—it may be talent in industry that we are trying to seek and trying to leverage. Part of the challenge with that is, with all our databases and all of our systems, we don't directly see the talent that is in industry, but that's why industry partnerships are so critical. And not just with the big defense companies, either—smaller companies also have a role. Sometimes the smaller companies could offer a capability faster than some of the larger ones can.

There is a caution there as well. We don't want to blindly mimic practices in civilian organizations or in private practice that may not fit the Army's unique cultural requirements. That is again one of the things the Rapid Capabilities Office is going to help to do, be that bridge with industry and the operational part of the Army.

MISSION: INNOVATION

Shoffner talks with Col. Christopher Norrie, commander of the 3rd Armored Brigade Combat Team, 4th Infantry Division (Iron Brigade) in Grafenwoehr, Germany, in May during a visit to U.S. Army Europe. Shoffner's trip was part of Army leaders' ongoing discussions with combatant commanders and units in Europe about capability gaps and innovative solutions. Iron Brigade Soldiers are currently stationed in countries across Central and Eastern Europe in support of Operation Atlantic Resolve. (U.S. Army photo)

Jones-Bonbrest: How is Army talent management changing? What were some of the new approaches the task force tried?

Shoffner: The Talent Management Task Force has existed for about 18 months now, and we were starting to pilot a few of the initiatives. One example is a pilot we are about to begin for the cyber workforce. We are actually looking to do a pilot for direct commissioning and bring folks on wearing a uniform to work in our cyber force. This may be folks who are just a few years out of college who already have some experience, and it may be folks who are toward an end of a civilian career. We want to be able to leverage the talent that's out there throughout the range of experiences. We also want to be able to compensate them appropriately. This direct commissioning authority that was given to us in the last National Defense Authorization Act gives us that for the first time. We are really excited about it, and we're going to push this pretty aggressively. The goal is to find those folks, to select and hire them, and get them into the training base sometime later this year.

We also tried something fairly innovative where we took a Soldier who was separating at the end of the first term of enlistment, and we brought him on as a DA civilian, a GS-13. Why? We did this because the Soldier wanted to continue to serve, he loved what he was doing and he didn't want to re-enlist, but he did want to continue to serve and help the team. By bringing him on as a GS-13, we were able to pay him reasonably well and ideally keep him for a career, not just the next term of enlistment. So to me that's a win in the long term—Soldiers no longer wearing a uniform but still on the Army team.

Jones-Bonbrest: Do these initiatives apply to the civilian workforce as well, especially in today's uncertain global security environment when the Army can't afford to lose top talent?

Shoffner: Some of the things we are learning in other career fields—for example, in cyber—we'll look at for applicability across the workforce. The Acquisition Corps has one of the largest

civilian workforces across the Army, and it's critical we get this right. Looking at talent management across the Army, we're a little bit ahead on the military side compared to the civilian side. There are some legislative proposals that may come through that would change that somewhat, but whether or not those legislative changes occur, we still have to figure out how to better manage our civilian workforce. I know the assistant secretary of the Army for manpower and reserve affairs looks very closely at this; they started a civilian workforce transformation effort. We're looking at some other cohorts across the Army to see what best practices we might be able to adapt.

One of the ideas we embrace is this idea of timeline flexibility. We do have the law on the military side, the Defense Officer Personnel Management Act. Obviously many laws govern our civilian workforce, but for both military and civilians, we are trying to figure out how we can allow for some more flexibility. That might be things like allowing folks greater flexibility for education, allowing them time to take a break and do something different, then come back to the workforce.

Similarly, some of our former military who are now in the civilian workforce, we'll look to bring them back—and it could be bringing them back wearing a uniform or bringing them back as a DA civilian. That ties into the whole "Soldier for Life" idea, that we want this interconnected network of current and former Soldiers who all talk to one another, they talk to industry, they are all sharing ideas and thoughts and looking for opportunities to help one another.

Jones-Bonbrest: What are the next steps for the Talent Management Task Force, now that you have moved on to a new assignment?

Shoffner: Another big milestone for us will be the implementation of the Integrated Personnel and Pay System – Army (IPPS-A), which will actually be fielded first with the Pennsylvania Army National Guard in the summer of 2018. We'll have a full capability there by 2021. IPPS-A is really important. It does three things for us: It's a total Army approach with active, National Guard and Reserve; it gives us that talent management capability; and it also gives us auditability. IPPS-A combines 30 different standalone data systems, and if you think of what just happened with [the pay controversy at] the California Army National Guard, I think that's a great example of something we can't afford to have fail.

Jones-Bonbrest: The Rapid Capabilities Office is still fairly new, having been stood up less than a year ago to rapidly deliver prototype capabilities to counter urgent and emerging threats. What are your goals for the office?

Shoffner: Looking forward, we're going to leverage currently planned exercises—the Network Integration Evaluation 17.2 at Fort Bliss, Texas, this summer will be a big one for us—to get Soldier feedback on urgently needed capabilities. We'll also be looking at exercises in Europe as opportunities to get some of the prototypes out, especially with regard to electronic warfare. Positioning, navigation and timing will be another one that we will put a lot of emphasis on between now and the spring of 2018. Those operational assessments and rapid fieldings are the methods we'll use to accelerate these prototypes to parts of the world and units out there where we can close those gaps and ultimately deliver overmatch. The other parallel effort is the Emerging Technologies Office, which is within the Rapid Capabilities Office and specifically focused on emerging technologies. They look to find those potential gaps and stop them from forming, so we make sure we are not surprised in the future.

Jones-Bonbrest: Is there anything about Army talent management that surprised you the most when you first got there, or that most people don't know?

Shoffner: Yes. I think most people think of it as military-officer effort only. It's not. It's military and civilian. It is officers, warrant officers and Soldiers. Some people think it's really about taking care of your best, and that's talent management. It does include that, but it's truly much more than that. It's about maximizing the ability of everyone to contribute in a meaningful fashion. So if I had a bumper sticker it would be: "Right Soldier, Right Job, Right Time."

Jones-Bonbrest: What's the bumper sticker for the Rapid Capabilities Office?

Shoffner: Bringing technology to bear before you know you need it.

*For more information, go to **http://rapidcapabilitiesoffice.army.mil** or email the Rapid Capabilities Office at **rapidcapabilitiesoffice@mail.mil**. For more information on the Army Talent Management Task Force, go to **https://www.ipps-a.army.mil/army-talent-management-task-force/**.*

MS. NANCY JONES-BONBREST is a staff writer for Data Systems Analysts Inc., providing contract support to the Army Rapid Capabilities Office. She holds a B.S. in journalism from the University of Maryland, College Park. She has covered Army modernization for several years, including multiple training and testing events.

SIMPLIFYING SATCOM

Transportable Tactical Command Communications is case study in how simplicity of design and ease of use allow for sustainment entirely by the unit.

by Maj. Jonathan Lipscomb

"The T2C2 training was outstanding; they really teach you the system so you know the ins and outs of it."

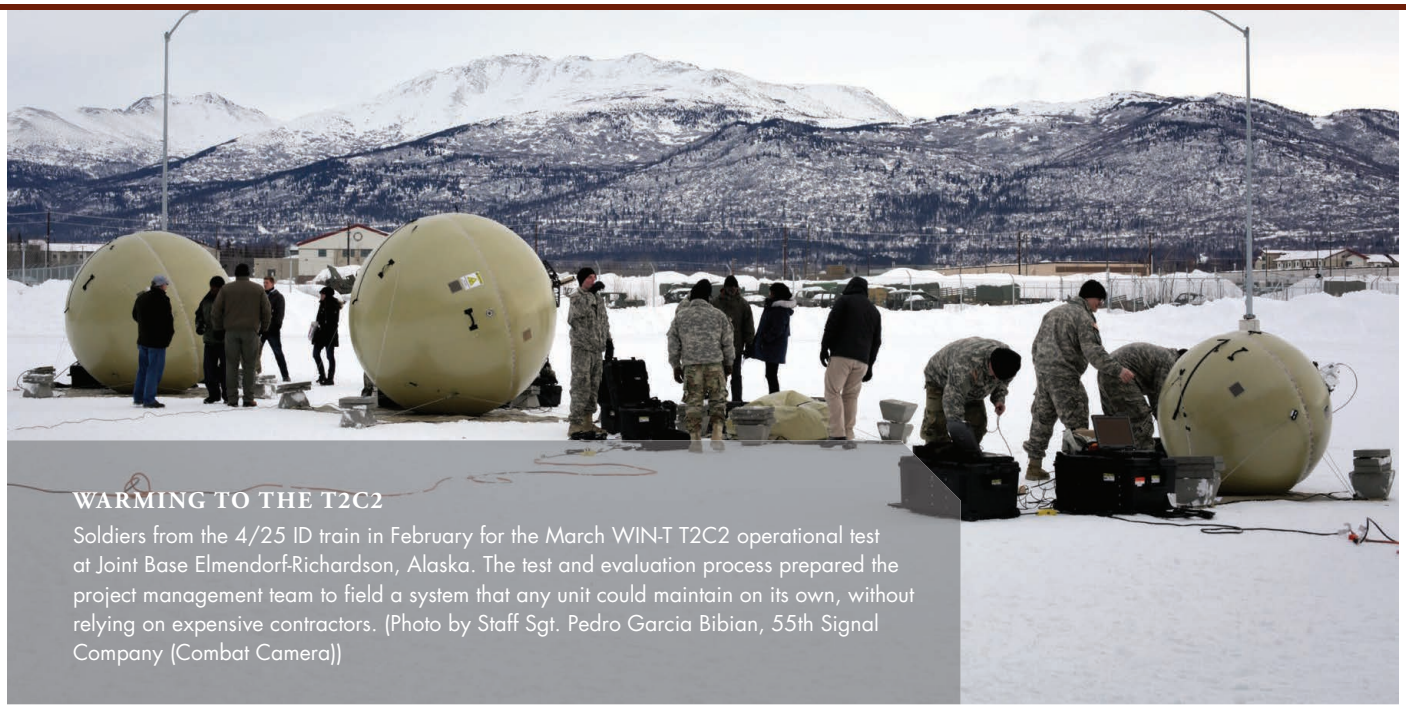
Give a man a fish, and you feed him for a day. Teach a man to fish, and you feed him for a lifetime. Adequately training units to operate, maintain and sustain their own systems is the cornerstone of the Army's push to reduce its heavy reliance on contracted field service representative (FSR) support and to improve unit readiness.

The sustainment strategy for the Army's new early-entry tactical network capability, Transportable Tactical Command Communications (T2C2), takes this saying to heart, and calls for this new program of record (POR) to be fully operated, supported and maintained by the unit without the need for FSRs.

Because of its simple design, even Soldiers without signal experience can learn to operate and maintain this unique inflatable satellite communications (SATCOM) system with minimal training. Additionally, collaboration across Army acquisition organizations is helping units learn to sustain the systems on their own.

In early 2000, during Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) in Afghanistan, the Army rapidly fielded advanced network capability to keep up with the pace of battle. To support such quick reaction, the service was forced to rely heavily on contracted FSR support, project manager (PM) assistance and industry-supported depots to ensure that Soldiers could operate and maintain all of the new technologies flooding the battlefield.

Since that time, a more constrained fiscal environment has motivated the Army to move away from expensive external support toward a more organic sustainment model whereby units are accountable



WARMING TO THE T2C2
Soldiers from the 4/25 ID train in February for the March WIN-T T2C2 operational test at Joint Base Elmendorf-Richardson, Alaska. The test and evaluation process prepared the project management team to field a system that any unit could maintain on its own, without relying on expensive contractors. (Photo by Staff Sgt. Pedro Garcia Bibian, 55th Signal Company (Combat Camera))

for systems. The Project Manager for Warfighter Information Network – Tactical (PM WIN-T), which manages the Army's tactical network, and its parent organization, the Program Executive Office for Command, Control, Communications – Tactical (PEO C3T), have been leaders in the Army's quest to reduce FSR support. Since FY13, PEO C3T has reduced its reliance on FSRs by over 75 percent and plans to eliminate an additional 50 percent by FY19.

In support of these efforts, PM WIN-T's sustainment plan for T2C2 calls for the system to be fully operated, supported and maintained by the unit. The unit also will be accountable for its own maintenance and spares, a procedure made possible by the system's simple design and ease of use.

T2C2 has proven to be easy for general-purpose users to set up, operate, navigate to enter various tactical networks and troubleshoot after just a couple of weeks of training. The system may look like a giant beach ball, but it provides robust expeditionary early-entry and remote edge-of-the-battlefield mission command via the Army's tactical network.

Because of its simple design, even Soldiers without signal experience can learn to operate and maintain this unique inflatable SATCOM system with minimal training.

T2C2 Heavy and Lite variants are inflatable, providing units with a larger antenna with increased capability and bandwidth efficiency in half the size of current solutions. These resilient SATCOM terminals can withstand extreme weather conditions and even air drops.

The Army successfully conducted the initial operational test and evaluation (IOT&E) of its inflatable T2C2 satellite communications terminal in March at Joint Base Elmendorf-Richardson, Alaska, with temperatures dipping below minus 10 degrees. Putting the system through an operational test and the many required precursor IOT&E risk reduction events ensures that it is ready for fielding and that units will be able to successfully operate, maintain and sustain the system once they own it.

TEACHING THE UNIT TO FISH

Months before the IOT&E, PM WIN-T, in conjunction with the U.S. Army Training and Doctrine Command, U.S. Army Communications-Electronics Command Life Cycle Management Command (CECOM LCMC) and industry, conducted a Soldier-supported logistics demonstration to help further improve the system's sustainment strategy. The logistics demonstration included full implementation and review of the training and technical manuals, which also provide step-by-step troubleshooting procedures. T2C2 also leverages the WIN-T

Information Support Exchange portal to provide detailed technical procedures, the most recent updates to training materials and technical manuals and community feeds on common troubleshooting approaches. Additionally, PM WIN-T is planning to implement interactive media instruction training materials to assist in train-the-trainer and refresher training.

Before the IOT&E, PM WIN-T provided new equipment training (NET) to the Soldiers supporting the test at Joint Base Elmendorf-Richardson. When T2C2 is ready to officially field, units will receive NET as part of the standard fielding process.

"The T2C2 training was outstanding; they really teach you the system so you know the ins and outs of it," said Sgt. Corey Farthing, automation noncommissioned officer for the Headquarters and Headquarters Company of the 4th Brigade Combat Team (Airborne), 25th Infantry Division (4/25 ID). "It's not just 'push the button because I said so'; you understand what happens when you do this and how to fix it because of that. And the technical manual is step by step. There are flow charts that talk you through. I don't think we found one thing yet that we haven't been able to fix through the manual."

Both the T2C2 Heavy and Lite variants will support early-entry combat operations. Additionally, T2C2 Heavy will support company-size forward operating bases, and T2C2 Lite will be fielded to special team-size elements, such as combat camera and human intelligence teams, which require high-bandwidth network capability to send large data files like photos, geospatial imagery and video. Soldiers from combat camera, Army Alaska public affairs and human intelligence teams with no prior signal experience were among the Soldiers who successfully operated T2C2 during the IOT&E.

"It's unbelievable that non-signal Soldiers with only two weeks of training are able to put these systems on the ground, acquire the satellite, put them into operation quickly, make voice and data calls, push products on their military intelligence systems and make mission," said Chief Warrant Officer 3 Woody Scott, 4/25 ID network operations officer in charge during the operational test. "That says something incredible about how these systems are designed in their simplicity and the quality of the training that the Soldiers have received."

Historically, keeping units well-trained on often complex network equipment has been a challenge for the Army. Soldiers often rotate in and out of units because of factors such as service advancements and mission requirements. Part of the solution to these ongoing training issues is to design new equipment (and modify legacy equipment) to be less complex, easier to operate, train and maintain, as is the case with T2C2. Because of T2C2's simple design and ease of use, units that have received the initial PM-provided NET will easily be able to train Soldiers who rotate into the unit.

The goal of the T2C2 system sustainment package is to enable units to fully support the system, which will achieve significant efficiencies in both time and cost for the Army. The PM WIN-T T2C2 team worked hand in hand with CECOM LCMC early in the acquisition process to map out the system sustainment package, including training, to ensure that units could be accountable for their own T2C2 systems. The T2C2 training strategy includes an important role for CECOM logistics assistance representatives (LARs), who will help train, advise and assist units in lieu of FSR support.

"When things work well for a POR [program of record], you will find that early on there was a partnership between the PM and the LCMC community," said Bill Flynn, CECOM LCMC trail boss for U.S. Army Alaska Field Support Battalion. Trail bosses are CECOM's face to the field, serving as a vital link between operational units and the many government and

TACTICAL COMMO

Soldiers from the 4/25 ID prepare for the March WIN-T T2C2 operational test at Joint Base Elmendorf-Richardson. The satellite communications system connects units at the edge of the battlefield to the Army's tactical network. (Photo by Staff Sgt. Pedro Garcia Bibian, 55th Signal Company (Combat Camera))

A PICTURE OF SELF-RELIANCE

A Soldier from the 4/25 ID sets up a WIN-T T2C2 Lite satellite terminal during the March pilot phase of the T2C2 operational test. T2C2 will be owned, repaired and sustained by the units that operate it—with reachback support available from CECOM logistics assistance representatives, and depot-level maintenance available for major issues. (Photo by Amy Walker, PEO C3T Public Affairs)

industry stakeholders that provide capabilities to the unit. They help ensure that proper training and equipment are in place and conduct end-to-end integration and planning to successfully execute events such as the T2C2 IOT&E.

"LARs will provide the training, mentorship and support needed when the unit becomes fully accountable for its T2C2 systems," Flynn said. "They will provide the continuity and cohesiveness units need as their Soldiers transition in and out of the mission."

MAINTAINING THE FISHING POLE

Maintenance is an important part of the T2C2 sustainment plan, to enable units to be fully accountable for their systems. In accordance with the T2C2 Life Cycle Sustainment Plan, the system will be sustained using two-level maintenance—with the unit, not contracted field support representatives, situated forward, fixing its own equipment first. When issues exceed unit capability, the systems will be sent out for depot-level support.

"You don't have to be too savvy on how to change out parts and fix the system," Farthing said. "If we do have to change a part that breaks, it's super easy on this system, whether it be on the baseband side or the antenna side. T2C2 is simple, definitely user-friendly."

Contractor support will be used until the depot-level support for sustainment maintenance is in place. The Product Manager for SATCOM intends to fully use the Standard Army Supply System when parts exceed their one-year warranty, as soon as parts are on the shelf and contracts for procurement and repair of spares are in place.

In addition to having LAR support, CECOM trail bosses, located at every Army division headquarters, will provide units with additional logistics support. Trail bosses have an extensive network of contacts and can assist units in locating the right people and resources to most effectively and efficiently resolve maintenance and other sustainment challenges.

"I don't have to know how to fix it; I have a very full Rolodex, I know who to call," Flynn said. "Trail bosses have great reachback. We are like orchestra conductors or street cops: If there is an issue, we will find the solution to the problem."

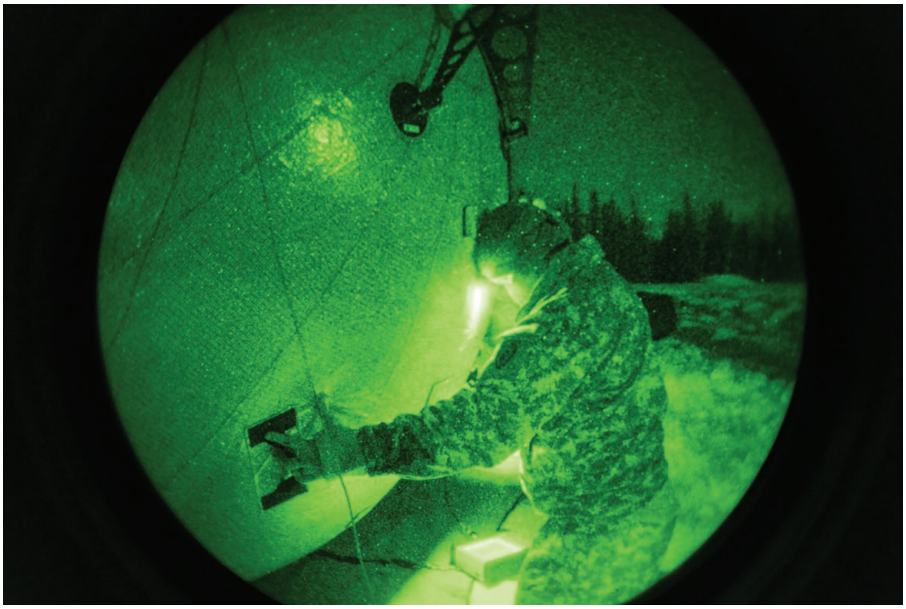
CONCLUSION

Changing the training and sustainment paradigm to enable units to be more self-sufficient when it comes to their equipment on the battlefield will help the Army in its quest to reduce FSR support, while reducing system downtime. The T2C2 program can be used as a model for other evolving programs with similar goals. The system is easy to operate, train and maintain by general-purpose users.

Additionally, the T2C2 team coordinated with key players early in the acquisition process to ensure that training and sustainment strategies were optimal and would contribute to the success of each unit. Returning to basics and putting sustainment responsibilities back into the hands of units—as it was before OIF and OEF—will enable units to more effectively operate the systems, manage their own property, repair issues quickly and increase the readiness of the force.

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

MAJ. JONATHAN LIPSCOMB is the assistant product manager for T2C2 SATCOM. He holds an MBA with a focus on acquisition and contract management from the Naval Postgraduate School and a B.S. in forestry from Virginia Tech. He is Level II certified in program management.



NOCTURNAL PERSPECTIVE

A Soldier from the 4/25 ID works with the T2C2 SATCOM terminal on a March night at Joint Base Elmendorf-Richardson. The inflatable terminal offers connectivity in remote locations at half the weight of current systems. (Photo by Staff Sgt. Pedro Garcia Bibian, 55th Signal Company (Combat Camera))

BY THE BOOK

Soldiers use the technical manual to troubleshoot procedures to correct faults inflicted on their system as part of the March test at Joint Base Elmendorf-Richardson. Early feedback indicates that non-specialist users can easily set up the terminals, use the system to access the tactical network and troubleshoot issues using the manual. (Photo by Staff Sgt. Pedro Garcia Bibian, 55th Signal Company (Combat Camera))

MS. MARGARET T. BALANOWSKI

COMMAND/ORGANIZATION:
Product Director for Army Watercraft Systems, Project Manager for Transportation Systems (PM TS), Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS)

TITLE: Assistant product manager and Maneuver Support Vessel (Light), Landing Craft Mechanized-8 and research, development, test and evaluation

YEARS OF SERVICE IN WORKFORCE: 29

DAWIA CERTIFICATIONS:
Level III in program management, life cycle logistics and business – financial management

EDUCATION:
M.S. in logistics management administration and master of public administration, Georgia College and State University; B.A. in chemistry and business management, Mary Baldwin University

AWARDS:
Achievement Medal for Civilian Service (4); Army Superior Unit Award; Detroit Federal Executive Board Employee Recognition as part of PEO CS&CSS; PM TS Employee of the Quarter

In dogged pursuit of acquisition success

Here's something that Margaret Balanowski has learned over the course of her three-decade federal career: Being an Army product manager is a lot like leading a dog through an obstacle course.

Balanowski has been with the Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS) for the past 15 years and has been involved with dog agility, dog shows and similar activities for about 12 years. "There are so many areas where my work and dog agility overlap. First, teamwork: learning what your teammates need. Everyone has different strengths and weaknesses and different ways of communicating. The challenge is to figure out how to work together toward a common goal."

In agility events, dogs must complete a series of obstacles, led by a handler who navigates the dog through the course. "Every course is different. The handler has seven minutes to walk the course and decide the best strategy to get their dog to complete the course within time and without any faults," Balanowski explained. "At work, we have an end goal and we must figure out the steps to achieve that."

Dog agility requires tackling one obstacle at a time, she added, and that focus is essential in acquisition as well. "Sometimes at work we tend to start worrying about obstacle No. 12, and we aren't there yet. Also, because there's more than one way to run a course, being flexible is important."

Balanowski is the assistant product manager (APM) for the Maneuver Support Vessel (Light) (MSV(L)) and the Landing Craft Mechanized-8. She also oversees research, development, testing and evaluation (RDT&E) for the product director for Army Watercraft Systems. One area of her managing RDT&E projects is ensuring that the Army's legacy and future watercraft fleet remains compliant with statutory environmental requirements, an effort involving close collaboration with Navy engineers.

"As an APM, I touch all aspects of a program—from funding and engineering to testing and logistics—and I'm able to see the complete picture. In the end, the most rewarding part is hearing from a Soldier that the piece of equipment you manage does what it is supposed to do and keeps them safe." In her 15 years at PEO CS&CSS, she has worked in different capacities on different products. Her career outside the PEO included assignments with the Air Force and the Defense Logistics Agency. "I've worked backward through the life cycle: I started on end-of-life turn-in procedures and logistics, worked as a program analyst, a logistician and a systems acquisition manager, and have been working on the MSV(L) from the materiel decision document to where we are now: source selection for contract award and obtaining milestone B approval."

MSV(L) is a new-start program designed to improve the Army's ability to maneuver from the sea with current combat platforms. The vessel is intended to access austere entry points, degraded ports and beaches without onshore support, thereby facilitating maneuver or sustainment operations, and will be capable of operating in rivers, shallow coastal waters and narrow inland waterways. Balanowski has played a role in getting the program from early development through successful release of the request for proposal.

This Acquisition Category III program is entering at milestone B. "Army Watercraft has not had a new program in more than 15 years and never had a program entering at milestone B. So, we don't have a road map for what milestone B paperwork should look like," Balinowski said. "We've been working with examples of documentation from several other program offices such as the Joint Light Tactical Vehicle [JLTV] program, using their program's documentation as a guide, but the JLTV is a vehicle and the MSV(L) is a vessel, so there are some differences."

Balanowski grew up in a military family and worked for a large defense contractor after graduating from college. "Something was missing from my job, and it took me nearly three years to realize that what I really wanted to do was work for the government, specifically DOD." Of the positions she has held, Army acquisition is her favorite. "To take user requirements and transform them into equipment that allows Soldiers to complete their missions is very rewarding."

> *"Be willing to step outside your comfort zone. Take opportunities for special projects or assignments, and expand your experience."*

The best thing for people seeking a similar career is to get uncomfortable, she said. "Be willing to step outside your comfort zone. Take opportunities for special projects or assignments, and expand your experience. Having experience in more than one area of a program management office allows you to excel in the long term." She knows whereof she speaks. She took part in a PEO CS&CSS shadowing program in 2015, spending two weeks traveling and attending meetings with Program Executive Officer Scott J. Davis. "That experience allowed me to gain insight on the span of systems within our PEO, the issues and concerns that are discussed at that level and the magnitude of responsibility that the PEO has. I am not sure I could keep up the same pace for 365 days a year."

As the APM for the Vehicle Mounted Mine Detection System, commonly known as the Husky, she spent 17 days at five forward operating bases in 2011, meeting the Soldiers operating the system. "That trip gave me the chance to understand things from the Soldier's point of view. I learned what was working, what needed improvement and how they felt about the vehicle in enabling them to complete their mission. When a 19-year-old Solider—who could be your child—tells you that they love the Husky and feel safe in it, you know that what you do day to day is working—something that's especially meaningful since route clearance is dangerous and demanding work."

—MS. SUSAN L. FOLLETT

KEEPING COMMANDERS CONNECTED

The Army's tactical network leverages WIN-T equipment to enable mission command, situational awareness and secure reliable voice, video and data communications, both on-the-move in tactical vehicles or inside a command post, such as this brigade command post at Army Warfighting Assessment 17.1 at Fort Bliss, Texas, in October 2016. (U.S. Army photos by Amy Walker, PEO C3T Public Affairs)

TECHNICAL *Manuals That* WORK

Logistics demonstrations ready a suite of tools to improve the Army's tactical network by inviting Soldiers to test the supporting documents in the fielding package.

by Lt. Col. Mark Henderson

Have you ever gotten frustrated trying to follow inaccurate or confusing directions while troubleshooting your home network? You may feel like tossing the directions and your computer right out the window. Now imagine troubleshooting with ambiguous directions under enemy fire, with your commander standing over your shoulder impatiently waiting for you to get his critical network connection up and running. On the battlefield, clear and accurate technical manuals can be just as important as the capabilities they support.

The Army conducts logistics demonstrations ("log demos") in part to prevent stressful scenarios like this one. Log demos evaluate and validate the adequacy of system support packages, including training and technical manuals, as part of the acquisition sequence of events when fielding a new capability, or when an existing capability has been significantly enhanced. Log demos reduce fielding risk and Soldier burden by ensuring that units have the logistical capability needed to successfully operate, maintain and troubleshoot the system in the field. Operational readiness is one of the Army's top priorities, and strong sustainment packages directly support this critical goal.

Additionally, as the Army continues to reduce reliance on contracted field service representative (FSR) support to improve efficiencies, strong system support packages become increasingly important to help fill that void. FSRs troubleshoot, mentor and provide training in both classroom and field environments, but the Army is moving away from this expensive external support toward a model defined by more organic unit accountability for system sustainment.

The Project Manager for Warfighter Information Network – Tactical (PM WIN-T), the Army's tactical network program office assigned to the Program Executive Office for Command, Control and Communications – Tactical (PEO C3T), conducted a successful Soldier-supported log demo for several expeditionary network signal modernization (SigMod) capabilities that are not programs of record at Aberdeen Proving Ground (APG), Maryland, in February. These new tactical network transport systems provide high-bandwidth network connections in small, easy-to-deploy packages. Soldier feedback and results from the log demo will support pilot programs and materiel release requirements, and will provide additional confidence in the subsequent fielding of these expeditionary network systems.

"Never underestimate the complexity of simplicity," said Sgt. Lawrence Seeman, who operates and maintains WIN-T Satellite Transportable Terminals for the Delaware Army National Guard's 198th Expeditionary Signal Battalion (ESB), which supported the SigMod log demo. "It's the little things, the simple things, that can create a more complicated problem. We are helping to point out any deficiencies in the technical manual so [PEO C3T] can make it more streamlined, functional and easy to follow."

NETWORKING AN AGILE FORCE

PM WIN-T delivers a powerful tool kit of expeditionary line-of-sight and beyond-line-of-sight network capabilities to every echelon and at every stage of operations. In addition, the PM will soon field six SigMod capabilities to augment and expand the transport capability of the tactical network. These capabilities will deliver expeditionary network communication for early-entry units and units at the farthest tactical edge of the battlefield, while reducing size, weight and power needs for increased agility.

The SigMod log demo included four specific SigMod capabilities: Commercial Coalition Equipment (CCE); the Modular Communications Node – Advanced Enclave (MCN-AE); Secure 4G LTE; and Secure tactical Wi-Fi. These expeditionary network technologies modernize and extend the Army's tactical network. Once fielded, they will provide significantly

MAKING CONNECTIONS

Soldiers from the 1st Brigade Combat Team, 3rd Infantry Division support a secure Wi-Fi pilot during their National Training Center rotation at Fort Irwin, California, in April. Log demos ensure that units have the logistics capability they need to operate the system successfully in the field.

Going wireless can reduce command post setup and teardown times by hours and reduce the amount of cable with protective flooring that needs to be transported from location to location.

BREAKING IT DOWN, FAST

A Soldier from the Delaware Army National Guard's 198th ESB breaks down commercial coalition equipment during a PM WIN-T logistics demonstration in February at APG. The expeditionary tactical network technologies at the center of the log demo are designed to provide significantly more capability in small packages.

increased capability in small deployable packages that Soldiers can set up and tear down rapidly for improved agility, enabling units to apply this new technology where the enemy will least expect it.

The SigMod tool suite includes the versatile CCE, which is packed in an easy-to-deploy, suitcase-sized transit case. The CCE provides secure expeditionary network connectivity for coalition, non-secure internet protocol router, secure internet protocol router and commercial networks. It can be reconfigured rapidly to provide secure tactical access to the coalition or commercial network to support both civil and military operations.

Additionally, CCE provides a radio bridging voice cross-banding capability that enables radios on different frequencies, or different equipment like radios or cellphones, to connect seamlessly to one another. This is essential in domestic humanitarian disaster response or coalition operations where countries and organizational entities use different equipment.

The MCN-AE uses the same network-agnostic hardware as the CCE, reconfigured to enable intelligence users to connect to all the same resources they would typically expect when using the Army's separate intelligence network—in this case using a unit's organic WIN-T tactical network equipment instead. The MCN-AE is significantly smaller than the tactical elements of the Army's separate Trojan SPIRIT intelligence system (a large truck and trailer), and can be used to augment the intelligence community in areas where the standard equipment is not available.

Secure Wi-Fi uses National Security Agency-approved "commercial solutions for classified" capability to provide secure classified and unclassified Wi-Fi inside the command post. Going wireless can reduce command post setup and teardown times by hours and reduce the amount of cable with protective flooring that needs to be transported from location to location. It also can untether Soldiers from their workstations for improved collaboration. Most importantly, it reduces network downtime significantly. Units can turn on their Wi-Fi hotspot and see the network come up first instead of last, in minutes instead of hours. Soldiers can stay connected longer when relocating their command post.

The secure 4G LTE capability will support a larger footprint surrounding the command post. This technology will extend flexible communications and reduce the weight Soldiers carry as they transition from bulky radios to smartphones.

The WIN-T SigMod tool suite also includes the easy-to-deploy, high-bandwidth terrestrial transmission line-of-sight radio and the range-extending troposcatter transmission capability, each of which will have separate log demos.

All of the SigMod capabilities are designed to make it easier for Soldiers to set up, operate, troubleshoot and maintain the equipment. As the Army continues to shrink the number of FSRs in the field, reducing system complexity is key to enabling units to support their own network systems.

SECURING WI-FI

A Delaware Army National Guard 198th ESB Soldier begins tearing down the network stacks used to support Secure Wi-Fi capability inside a command post during the WIN-T log demo in February at APG. After the log demo, technical writers updated user manuals with the Soldiers' feedback and will continue updating them throughout the life cycle of the product.

THE HUMAN FACTOR

PM WIN-T specifically chose Soldiers from the 198th ESB to support the SigMod log demo in February not only because of the unit's close proximity to APG, but more importantly, its previous exposure to the SigMod systems as part of a Disaster Incident Response Emergency Communications Terminal (DIRECT) risk reduction event in August 2016. DIRECT combines the National Guard's organic WIN-T tactical network equipment with some of the new SigMod capabilities to link first responders and emergency managers with state and federal authorities during natural disaster, emergency and civil support operations.

PM WIN-T will field DIRECT to all states and territories with a National Guard presence. The capability is expected to be fully fielded by 2025, and pilots are underway. The SigMod log demo supports the Army National Guard DIRECT fieldings as well as SigMod fieldings to active Army units in support of military contingencies and humanitarian efforts around the world.

U.S. Army Training and Doctrine Command capability managers also supported the log demo to ensure that the training and technical manuals provide optimal support to units in the field. Providing solid new equipment training and making sure Soldiers remain well-trained throughout a product's life cycle are vital to the success of any system, and the new expeditionary SigMod capabilities are no exception. The log demo team also included representatives from the U.S. Army Communications-Electronics Command's Directorate for Safety, who provided system safety releases. Safety requirements and specifications are critical elements of quality assurance, both for execution of the log demo and for proper operation of the capability in the field.

Additionally, since these are commercial off-the-shelf products, industry representatives were available on site during the log demo to provide support and insight, as were Army technical writers to help make corrections to the technical manuals and ensure clarity and functionality in the language and graphics.

SETTING THE STAGE FOR FIELDING SUCCESS

In September 2016, months before the log demo, the deputy assistant secretary of the Army for acquisition policy and logistics hosted the operational sustainment review (OSR) for PM WIN-T's Increment 1 product manager, which manages the SigMod capabilities. Preparation for this intensive logistical review took approximately nine months. The information learned before and during the OSR helped to reinforce and shape improvements to the sustainment strategy and acquisition approach.

As part of the SigMod log demo, Soldiers received refresher training on the various capabilities to support their optimal participation and feedback during the event. Next, they relied on the training and technical manuals to set up the equipment, link to the satellites, and operate, troubleshoot and tear down each of the systems. Along the way, the Soldiers provided feedback to clarify and correct discrepancies in the technical manuals and ensure that they were functional.

The PM WIN-T log demo team purposely introduced faults into the system at varying levels of difficulty. The Soldiers were able to follow the troubleshooting guide in the manuals to fix the issues effectively while offering feedback on how to improve or simplify the steps, language, flow charts and graphics.

The trained Soldiers pointed out discrepancies in the technical manuals that could trip up a busy user in the field, such as an instance in the troubleshooting flow chart that pointed the user to the wrong place. Another discrepancy was caught in the technical manual of the 4G LTE system when the team inserted a fault into the system that required a system restart. The technical manual did not state that after fixing the fault, users should wait 10 minutes before restarting—allowing the host server to communicate to the other server any changes to the hard drive so that all the information is saved properly.

The log demo team was also able to provide information on setup and teardown times, and how fast Soldiers were able to identify and correct issues.

Going through the technical manuals sentence by sentence, word by word, may seem like a lot of extra work, but it can make the difference between a system that is successfully supported and one that is not.

"It is important that we test the systems thoroughly so the technical manual works the way it's supposed to work, and if a capability does break in the field and Soldiers have to use the technical manual to troubleshoot it, they can get it to work without any problems," said Sgt. Justin Diamond, senior WIN-T Joint Network Node operator for A Company, 198th ESB.

> *"Never underestimate the complexity of simplicity. It's the little things, the simple things, that can create a more complicated problem."*

After the actual log demo event, technical writers updated the manuals with the Soldiers' feedback. After fielding the capabilities, PM WIN-T will continue to update the manuals throughout each product's life cycle. Soldiers can request changes or email questions to PM WIN-T on items they think may need clarification. Units will have digital access to the manuals, which is more secure and efficient than fielding hard copies and will enable the PM to provide continual updates to the manuals.

CONCLUSION

Log demos may not sound particularly glamorous, but they play a critical role in the acquisition process and the successful fielding and support of Army capabilities. They reduce fielding risk, increase efficiencies and provide confidence in capability support packages.

The expeditionary SigMod suite of equipment will modernize the network and significantly increase operational flexibility. The WIN-T SigMod log demo reinforced the fact that, having fielded these agile network capabilities, the Army will be able to maintain and support them using the established support package.

"Having us go through the equipment, the training manual and the troubleshooting definitely helps, because Soldiers are the ones using this equipment, so it should be based on our input and not [solely] on that of engineers," said Sgt. Gina Mazzola, network operator for the 198th ESB. "I appreciate that we had a say in the improvement of these capabilities, especially since it supports our brothers and sisters in arms."

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

LT. COL. MARK HENDERSON is the product manager for WIN-T Increment 1. He holds an executive MBA with emphasis in information systems management and a master of education with emphasis in counseling and psychology, both from Troy University, and a B.S. in political science and government from Kennesaw State University. He is Level III certified in program management, with master's certificates in lean six sigma, negotiations, expert selling, applied program management and advanced program management. He is a member of the Army Acquisition Corps.

TAKING STOCK OF SUPPLY

Sustainment and logistics Soldiers, including these troops from the 364th Expeditionary Sustainment Command (ESC) who managed supply yards and ammunition supply points during the multinational exercise Anakonda in Poland in June 2016, will benefit from the training and implementation plan that's designed to make the transition to GCSS-Army as seamless as possible. (Photo by Maj. Marvin Baker, 364th ESC)

ON THE RIGHT GTRAC

Fielding the Global Combat Support System – Army posed formidable training challenges. The product management office opted for a slow-and-steady approach that introduces users to the new logistics software over 150 days.

by Mr. Antonio Ocasio

The Global Combat Support System – Army (GCSS-Army), an Acquisition Category I major automated information system program and the largest logistics software implementation in military history, is well on its way to completion.

GCSS-Army is an enterprise resource planning (ERP) system that facilitates near-real-time management of all the Army's sustainment missions. It replaces current tactical logistics management information systems, including the Standard Army Retail Supply System, Property Book Unit Supply Enhanced and Standard Army Maintenance System – Enhanced.

It also replaces tactical financial management information systems, such as the Single Stock Fund Middleware and the Funds Control Module. These systems performed their missions well, but GCSS-Army integrates all of their functions into a single database that provides accurate, near-real-time tactical logistics and financial information for all stakeholders.

The fielding of GCSS-Army has been so huge that the effort had to be split into two waves. Wave 1 fielding began in November 2012 and was completed in November 2015. Wave 2 began in January 2015 and is projected to complete full deployment by the end of this year.

When GCSS-Army is fully in place, the number of users will amount to a workforce that would make GCSS-Army the 45th largest employer in the

U.S., just below Boeing Co., UnitedHealth Group Inc., Verizon Communications Inc. and The Walt Disney Co., but ahead of Costco Wholesale Corp., Hilton Worldwide Holdings Inc., Xerox Corp., Comcast Corp., General Electric, Coca-Cola Co., Microsoft Corp. and Oracle Corp.

This effort has not been without its challenges, however. Along the complicated road to implementing an Armywide overhaul of its logistics automation infrastructure, GCSS-Army program management had to confront various hurdles, including:

- The complex demands of fielding an ERP solution across multiple business areas and levels of materiel management. The business areas of supply support, property book, ground maintenance, unit supply, finance and materiel management will now exist within a single database and operate in near-real time.

- The dynamic and varying requirements flowing in from its major components (active Army, National Guard and Army Reserve). With each component varying in configuration and mission, GCSS-Army had to be designed to meet each component's unique needs. In addition, the next level of unique needs within each component had to be considered and met, such as:
  - Missile system: specific detailed system and subsystem management.
  - Watercraft: onboard spare parts management.
  - Logistics Readiness Center: reimbursable maintenance requirements.
  - Operations and Maintenance, Army and Army Working Capital Fund streams.
  - Special operations.

- The extensive coordination required to field an Army in motion and transition. This required considering each unit's training schedule and possible deployment within the fielding window.

- The resistance to change that historically has plagued ERP implementations. Users had grown comfortable using fairly basic, unsophisticated systems over a period of years and in some cases decades. The basic logistics language that had prevailed since the 1970s was being replaced and required significant relearning. Finally, career legacy experts were becoming novices overnight, adding to increased discomfort with the system.

- The significant policy, regulatory and doctrinal overhaul required to reflect appropriate guidance. Historically, the development of replacement logistics software systems was regulation-based. In other words, functionality had to conform to existing regulations, which tended to perpetuate the logic, functionality and language of systems being replaced. Previous logistics software replacements required minimal changes to regulation and doctrine.

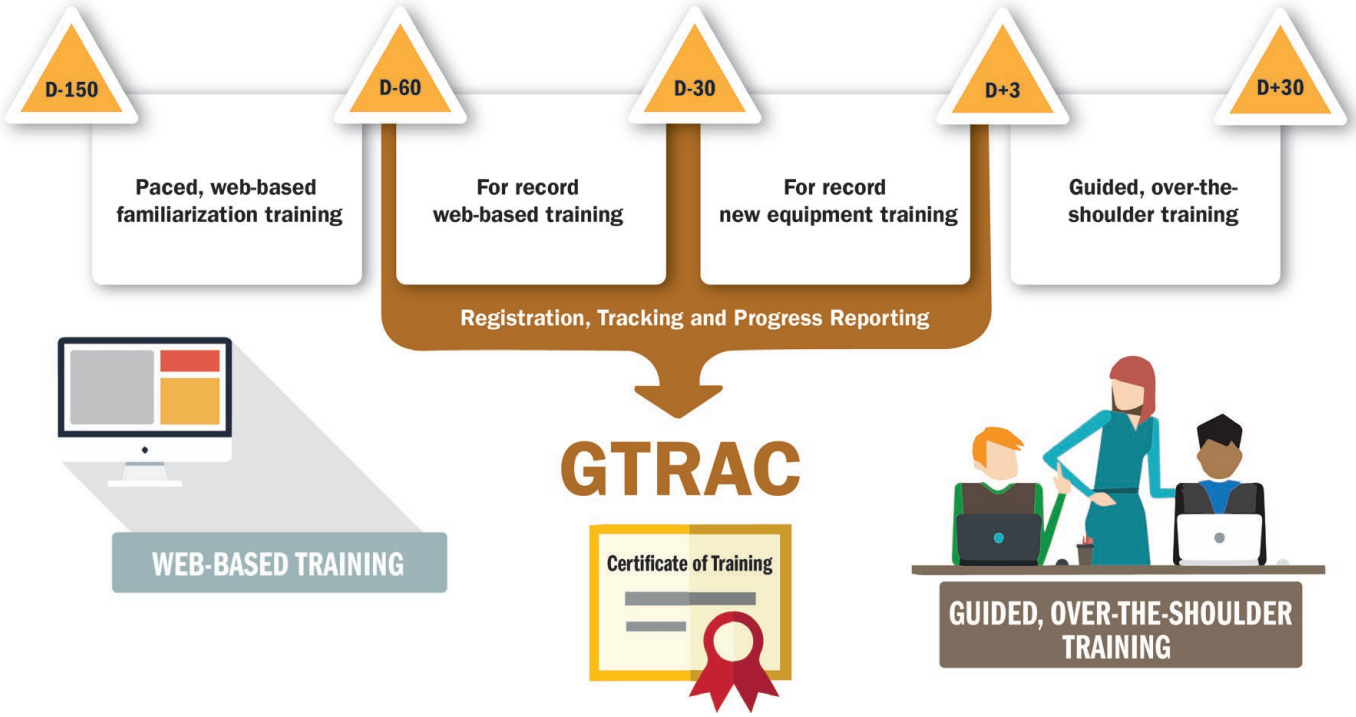
IT STARTS WITH THE WEB

Fielding of GCSS-A starts with internet-based training that includes the structure, language, process flow, basic navigation and access administration of the system. (Image courtesy of the author)

TRAINING AND FIELDING

One of the most demanding efforts throughout the GCSS-Army program has been the daunting new equipment (in this case, enterprise) training requirements. The fielding of logistics information systems over the past four decades has been pretty standard; it followed the basic design, develop, test, schedule, train, convert and sustain events. Each fielding involved a singular logistics business area such as supply, maintenance, property book, unit supply or ammunition. This allowed the Army to define and isolate the target business area.

The significantly smaller population of target users made it easier to communicate and coordinate the fielding requirements. In essence, the stand-alone nature of legacy logistics information systems allowed for their discrete fielding while the other business areas remained unaffected. The only distinct requirement



NEXT STEP: GTRAC

The second step to fielding is the GCSS-Army Training and Certification system, which targets training more to the specific user's role within a business area than was the case with predecessor training methods. (Graphic courtesy of the author and the U.S. Army Acquisition Support Center (USAASC))

that involved collaboration with other systems was the need to interface or communicate effectively with other legacy platforms in order to pass data back and forth.

NEW APPROACH TO TRAINING

The narrow focus of previous logistics software has allowed for a fairly stable development and delivery process involving three basic new equipment training components: a functional user manual; 40 to 80 hours of instructor-led classroom training with two instructors; and two to four weeks of over-the-shoulder monitoring in the user's converted environment. This standard approach applied throughout fielding with little variation.

In stark contrast, the decision to leverage state-of-the-art ERP software and merge multiple Army logistics business areas into a singular, integrated ERP presented a complicated challenge to program management, with these key training considerations:

- ERP systems are complex. How can we minimize the significant learning curve common to ERP implementations?
- What type of approach will we need to reach more than 160,000 users representing seven business areas, across three components?
- How can we execute the eventual training solution while managing cost and schedule?
- How can we ensure a smooth, seamless transition of knowledge to the institutional base and troop-school complex?

THE SOLUTION

The answer came gradually, beginning in 2006, when we realized that implementing GCSS-Army would be too complex to perform in two- to four-week sessions per unit, as was the standard with predecessor systems. As the fielding team shaped the length and specifics of the conversion process, the training team began conceptualizing the training progression. The progressive training model took hold during a successful Wave 1 effort and continued to evolve during the early stages of Wave 2 implementation.

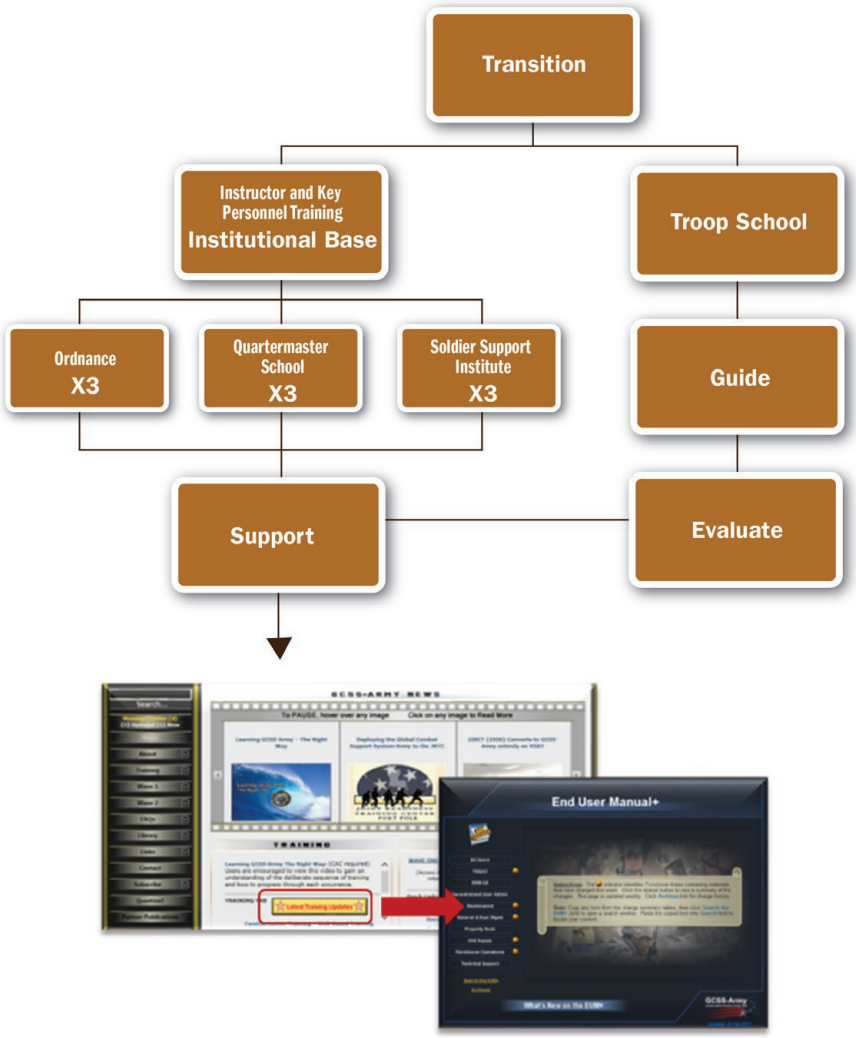
The model begins early in the fielding process and spans 150 days. The intent is to provide the user with a steady diet of GCSS-Army content throughout this extended learning period. The progressive model, developed internally and consistent with training theory, has several components that combine to create the equivalent of a full "semester" of GCSS-Army training. This model enables each user to begin the learning process early, committing a few hours weekly, and gradually to absorb a huge amount of content, thus flattening the learning curve leading to post-conversion activities. At that point the user is guided through a series of routine processes, allowing for practice in

a live system. According to Juan Torres, a GCSS-Army trainer at Fort Bragg, North Carolina, "The users are learning faster during the over-the-shoulder guided training. They like being able to ask questions as they execute their daily mission in a live system."

The first component is web-based training. Thirteen modules are hosted on the GCSS-Army field-facing website, and a robust training center (**http://gcss.army.mil/Training/WebBasedTraining.aspx**) provides a suite of lessons intended to familiarize the new user with the basics of GCSS-Army, including the structure, language, process flow, basic navigation and access administration. If the entire training process is crawl-walk-run, web-based training is the "crawl."

The second component is the GCSS-Army Training and Certification (GTRAC) system, a dynamic and progressive training management environment that allows users to register and take certificate-producing and introductory web-based training specific to their business area, as well as formal new equipment training. The training now is more targeted to the specific user's role within their business area. GTRAC introduces the user to the theory and logic of processes within a realistic scenario; simulations of the live system allow the user to gain experience in executing the mechanics of each process.

Next is instructor-facilitated training. Formal classroom training varies from four to 40 hours, depending on the business area. This is followed by over-the-shoulder support, which puts into practice all of the concepts learned during familiarization web-based training and formal new equipment training. A qualified trainer walks the user, who now has full access to data from their business area, through the execution of a daily process battle rhythm in a live environment. The processes are repeated, with the trainer gradually backing away as the user becomes comfortable.



SPREADING THE WORD
The final step in the GCSS-Army fielding is to provide the new equipment training package to the respective TRADOC institutions and regional troop schools. (Graphic courtesy of the author and USAASC)

The last component is the user manual plus, a dynamic, all-inclusive, searchable online reference manual that contains cue cards, transaction guides, job aids and simulations to lead a user through detailed process steps. The content is easily accessed within GCSS-Army, is available in multiple formats and is downloadable.

Full speed ahead! Armed with an improved version of the training strategy used for all of Wave 1 and through fielding group 20 of Wave 2, the product manager continued to execute the Wave 2 fielding unabated.

BUILT FOR VARIATIONS

Faced with the need to streamline training to maximize cost avoidances, the program management office, in coordination with the U.S. Army Combined Arms Support Command, Army G-4 and the assistant secretary of the Army for acquisition,

logistics and technology, developed a hybrid training module to create a more cost-efficient training approach. The model allows specific tailoring of training in terms of length, how much is online or instructor-led, and the duration of over-the-shoulder, guided, live system training. The combination of delivery modes will vary by Army component, region, personnel availability and cost.

The standard approach uses the online training suite of tools to deliver new equipment training to the active Army while providing centralized classroom training to the National Guard and Army Reserve; as a result, the program management office is able to get critical training into the hands of users faster. This modified version of the progressive training approach will be applied beginning with group 21 of a planned 30 fielding groups.

SUSTAINMENT TRANSITION

No training strategy is complete without an approach to transition the knowledge to the institutions (in this case, the quartermaster, ordnance and finance schools). In the GCSS-Army plan, the full new equipment training package is provided to the respective U.S. Army Training and Doctrine Command (TRADOC) institutions and regional troop schools.

GCSS-Army provides three iterations of instructor and key personnel training to the school training staff, and provides guidance and coaching to the troop school training administration.

TURNKEY UPDATES

To ensure that the training institutions have the very latest information, GCSS-Army posts a link to all of the changes to training content on its website, which then takes the user to the end-user manual plus location where the changes are detailed. This update occurs weekly to keep programs of instruction current. GCSS-Army also built in a user satisfaction survey at the end of training to receive direct, ongoing feedback, which is vital as GCSS-Army continues to field Wave 2.

Here is a sampling of some of the user feedback received so far:

- Live system access. Ideally, access to a live system would be more realistic and effective. The concept is not new; it has been used several times to train legacy systems. The stand-alone or decentralized nature of legacy systems made it fairly easy to develop a base scenario within a training instance with reset capabilities. In a classroom setting, students would be guided through scenarios and required to execute processes to achieve the school solution. Once completed, the box would simply be reset to the beginning state.

  This approach becomes significantly more complicated and costly when your instance is the entire production system—in fact, this one topic would merit an article of its own. The approach we took was to capture actual simulations of a development system, allowing students to execute processes that mimicked the live system.

- Training needed to be longer. This feedback was difficult to fathom since the training was 150 days long. We assumed users wanted more classroom training and built that into our over-the-shoulder approach, which not only extends training but involves actual instructors guiding users through daily processes in their own live system.

The ability to adapt to unexpected challenges, or simply to create more user-friendly training modules, will drive GCSS-Army to success. With an approval rating exceeding 90 percent based on user surveys, the GCSS-Army Program Management Office is confident that full deployment will be another success story.

CONCLUSION

Having cracked the code with a hybrid template for new equipment training, program management can now leverage the training development, delivery and sustainment model to ensure that the Army at large can certify and recertify its population of GCSS-Army users well into the future. In addition, the model is flexible enough to accommodate future software implementation efforts.

The GTRAC learning management component has issued more than 766,000 certificates of training, covering eight business areas and six supplemental areas, to more than 122,000 GCSS-Army users from unit level through the Army G-4 and the U.S. Army Materiel Command. At the current rate, GCSS-Army expects to exceed 1 million certificates issued by October 2017.

For more information, including the video "Learning GCSS-Army the Right Way," go to ***http://gcss.army.mil/Training/WebBasedTraining.aspx*** *or contact the training team at* ***usarmy.lee.peo-eis.mbx.gcss-army-training@mail.mil****.*

MR. ANTONIO OCASIO is chief of the Product Training and Transition Branch within the Product Life Cycle Division of the Product Management Office for GCSS-A, Fort Lee, Virginia. He holds a bachelor's degree in business management from St. Leo University. He is Level III certified in life cycle logistics and in program management. He is a member of the Army Acquisition Corps and has served as a career logistician for more than 40 years.

MR. MICHAEL DONEY

COMMAND/ORGANIZATION:
Project Manager for Distributed Common Ground System – Army; Program Executive Office for Intelligence, Electronic Warfare and Sensors

TITLE: Product director, Machine Foreign Language Translation System

YEARS OF SERVICE IN WORKFORCE: 33

DAWIA CERTIFICATIONS:
Level III in program management and engineering

EDUCATION:
M.S. in engineering management, George Washington University; B.S. in civil engineering, Virginia Tech

AWARDS:
Meritorious Civilian Service Award; Superior Civilian Service Award; Commander's Award for Civilian Service (multiple); Achievement Medal for Civilian Service (multiple)

Product director puts translators in Soldiers' pockets

"There will never be enough human linguists to meet the Army's varied translation requirements." That's the problem Michael Doney's team works to solve. The solution it's building is the Machine Foreign Language Translation System (MFLTS), a family of software applications that will translate spoken and written material in any foreign language, anywhere in the world.

Commercial translation apps and services solve the general problems a Soldier trying to speak with a local vendor might encounter. But they stumble over DOD-isms, and they generally don't work without internet access. "Moreover, the Army often requires translation of uncommon languages and specific dialects that are of little or no interest to commercial users and thus not typically available on commercial platforms," Doney said. His team is integrating military-specific language into apps that will be hosted locally on a Soldier's smartphone or similar device.

In effect, it's a pocket translator that can go to the most remote corner of the world, a neat solution to the impossibility of having an Army linguist or local translator on hand at all times. "Developing innovative and creative solutions to complex problems is always professionally very satisfying," said Doney. As product director of the MFLTS team, he leads a diverse group of acquisition professionals and is responsible for all aspects of the program, he said, "ranging from building the program team to the development of acquisition, contracting and sustainment strategies that result in the fielding of a required capability to Soldiers."

MFLTS is a case in which an Army-built solution was appropriate and necessary, but Doney's three decades in acquisition have given him an appreciation for the

importance of "mutually beneficial and productive relationships with our industry partners." During the run-up to the first Gulf War, "I saw how American industry could achieve previously unthinkable levels of production of complex high-tech equipment, and rapidly deliver capabilities to deployed Soldiers that were critical to mission success," he said.

"Greening" has also been an important, and still continuing, part of his career. "I was fortunate to have an opportunity to work alongside NCOs early in my career," he said. "Learning and understanding how the Army is organized provides the foundation for the development of POR [program of record] concepts, programmatic strategies, product requirements and testing methodologies, as well as development of fielding, training and sustaining approaches."

GETTING THE MESSAGE ACROSS

The MFLTS undergoes testing during the Army Expeditionary Warrior Experiment 2016 at Fort Benning, Georgia. Soldiers used the MFLTS 2-Way translation app on the Nett Warrior device to speak with Soldiers from the 52nd Translator-Interpreter Company who played the role of Iraqi interlocutors. MFLTS translated on the spot from English to Iraqi Arabic. (U.S. Army photo)

Listening to Soldiers at field events is critical, he added. "It is equally important for acquisition personnel to gain an understanding of how Soldiers perform their individual and organizational tasks. If we understand the use cases for our products, which includes the usage environment that dictates constraints and limitations, as well as [understanding] the operators who will employ the capability, we are more able to provide a new or improved capability that easily transitions into service and achieves a high level of Soldier acceptance."

When it comes to leadership, Doney espouses a "shovel the coal" philosophy: Shovel the coal yourself, that is, before you get to a position where you supervise others who do. Doney specifically emphasizes the importance of future program managers (PMs) participating in "as many source selection boards as possible." He also recommends the PM course at Defense Acquisition University (DAU). "The staff instructors at the DAU PM course stand out as being particularly memorable," he said. "These instructors created an experience that I continue to value greatly, as it thoroughly prepared me for the next steps in my career."

Doney's parents were in public service. Their example, and three college summers as a temporary hire with the U.S. Army Corps of Engineers, led him to federal service. He joined the acquisition workforce immediately after graduating from college, working in the U.S. Army Research, Development and Engineering Command community of scientists and engineers. "After 10 years of leading [research, development and engineering] projects, I was asked to support a program management office and found a natural alignment of my personal and professional abilities with program management tasks that I found extremely challenging and rewarding."

Though he has been working in program management for the last 20 years, Doney can still recall one formative moment when he went "into the cauldron early." As a relatively new GS-7 engineer, he briefed the three-star deputy commanding general of the U.S. Army Materiel Command (AMC) on the status of an AMC-wide project that "had been experiencing some significant implementation challenges." This drove home "the importance of organizing information and effectively communicating, very early in my career."

—MS. MARY KATE AYLWARD

CALLING TONY STARK

STEM Superstar uses superheroes and children's movies to introduce and define STEM concepts to elementary school students. Feedback gathered over the first four years of the program justifies continuing it locally and encourages its implementation in other communities. (Images by CERDEC)

ENGINEERS Don't Need *TRAINS*

CERDEC's STEM Superstar program uses pop culture, superheroes and everyday activities to show elementary school kids that STEM is everywhere.

by Ms. Erica Fineman-Bertoli

One afternoon when my son was five, we started talking about what he wants to be when he grows up.

"What about an engineer like your dad?" I asked.

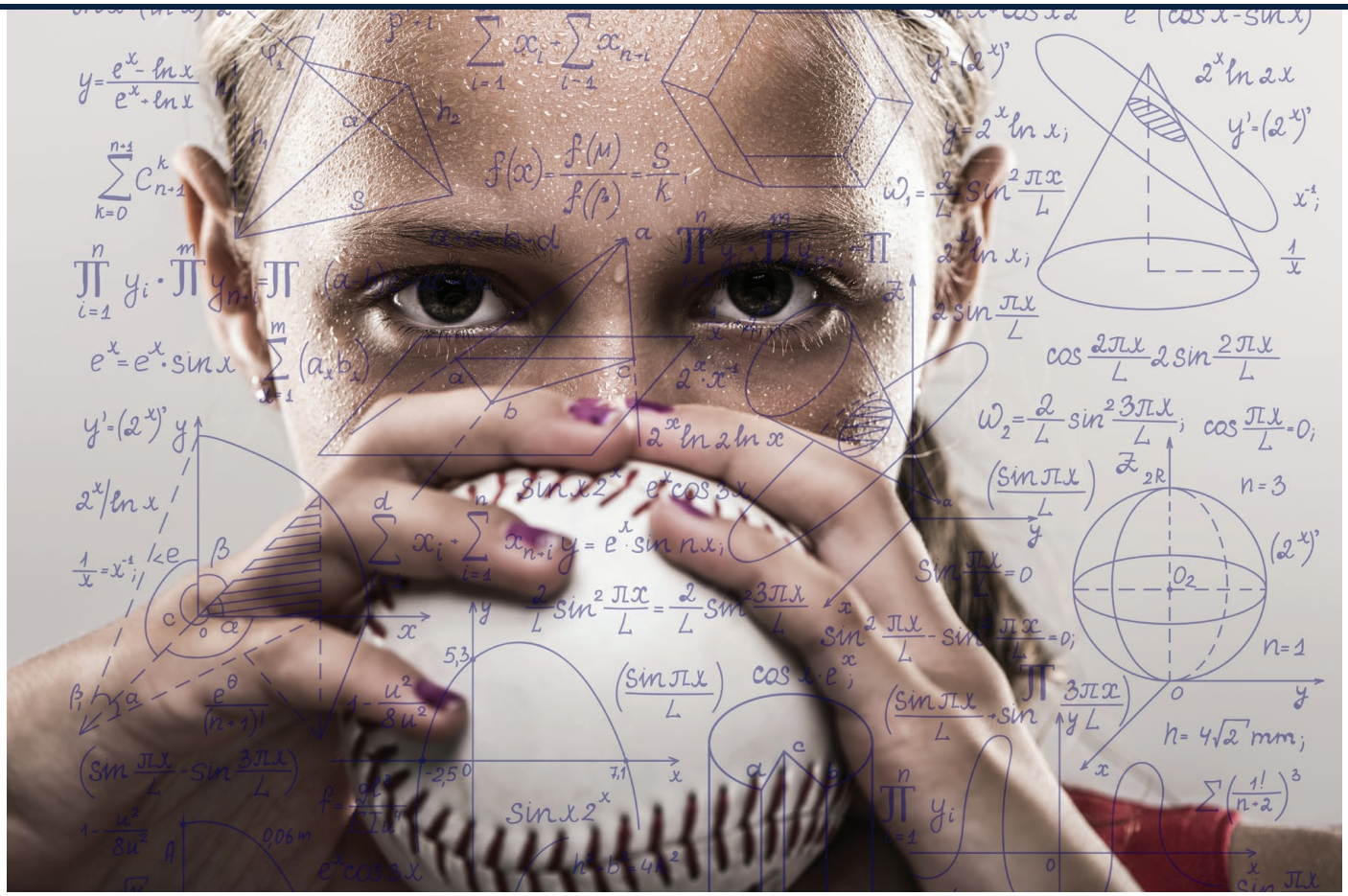
"I know Daddy's an engineer," he said. "And he has never shown me his train, not once!"

Confused, I said, "Your father doesn't have a train."

"He doesn't?" he asked. "Then what's an engineer?"

Seven years later, that simple question from a 5-year-old boy evolved into a science, technology, engineering and math (STEM) program that so far has served 20,792 students in 937 classrooms.

STEM education is a national priority as the U.S. looks to secure its economic future beyond the 21st century. It is particularly critical within DOD, where STEM professionals are necessary to ensure national security. Yet selling kids on STEM can be difficult, as they often perceive it as too hard to attempt or too "uncool" to pursue.



CALCULATING THE ANGLE

STEM Superstar stresses two concepts: Engineers build things to solve problems, and STEM is fun. The program, which can be duplicated easily and executed with minimal resources, aims to introduce engineering in a low-threat, high-entertainment environment that promotes the idea that STEM is for everyone.

In addition, an analysis of existing STEM programming conducted by the U.S. Army Communications-Electronics Research, Development and Engineering Center (CERDEC) in 2009 showed a tendency for programs to target middle and high school students, providing skill-based activities, classroom-like seminars, lab experiences and internships. While these programs are critical to shaping the future STEM workforce, they ignore younger students. This lack of early exposure can discourage participation in middle and high school; by then, students see STEM as intimidating or "different." CERDEC's STEM Superstar program and STEM Outreach portfolio aim to overcome those perceptions and introduce the youngest students to STEM.

BUILDING ON EVIDENCE (AND SUPERHEROES)

Most kids don't like homework. They like sports, music, television and playing outside. If you ask them to choose between their favorite activities and studying, play will win every time. Knowing this, STEM Superstar asks every student, "What if I told you that every time you play, you are practicing STEM skills?" Suddenly, science homework doesn't seem so bad.

CERDEC Outreach began writing the core curriculum for STEM Superstar in 2010. We decided early on to combine a traditional lesson element with a hands-on design activity. Wanting to keep it simple in deference to a targeted audience of first- through fifth-grade students, we identified two key concepts: "Engineers build things to solve problems" and "STEM is part of what you love to do every day." With our key concepts in hand, we began the process of creating the lesson segment, using a narrative-based design that would leverage stories and activities the students already know and enjoy to develop an attitude of "I can."

In the field of communication theory, Walter Fisher's "narrative paradigm" states that effectiveness in communication relies

on storytelling. This approach supports persuasive communication design and ties easily to research into the use of popular culture in the classroom. Teaching complex ideas through popular culture is rooted in research that links literacy outcomes to the effective use of prevalent narratives, and learning to students' self-identity. The practice dates back more than 15 years and has been explored in academic journals, including the Journal of Literacy Research and the Harvard Education Letter.

STEM Superstar combines these two principles by linking STEM lessons to stories children already know, identifying the characters as part of the STEM world and presenting information as part of an overall story arch as opposed to in individual chunks. Specifically, the program uses superheroes and popular children's movies to tell a story and help students to see themselves in terms of STEM success.

In designing the hands-on portion, we drew from "instant challenge" models used by programs such as Destination Imagination, in which students are given a specific task with limited time and resources to complete it. The activity or "mission" we ultimately designed drew on the popular-culture reference points already introduced while also including grade-level math or science concepts, teamwork and presentation skills.

Following completion of the program design, we did a program pilot in 2011 to fine-tune the material and then approached Maryland's Harford and Cecil county school systems, with a total of 50 elementary schools, to launch STEM Superstar. We decided that STEM Superstar would be a five-year program, visiting 10 schools each year, to ensure that every public elementary student would participate at least once.

BECOMING A STEM SUPERSTAR

"Iron Man is the best superhero ever because he has no superpowers," every class of STEM Superstars is told. "No one in this room has superpowers, and neither does Tony Stark. He gets his powers from the Iron Man suit that he designed and built. He is an engineer. And since with hard work any of us can be engineers, that means that like Tony Stark, we can all be superheroes."

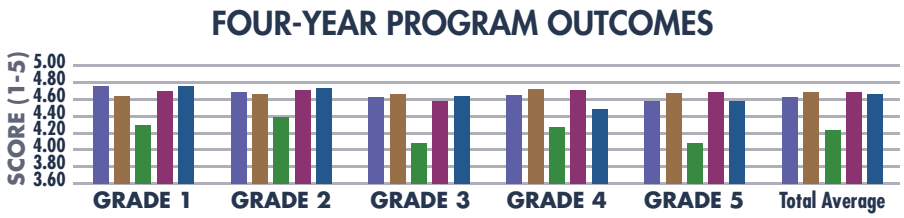
Each lesson begins with a discussion of superheroes. From there, we move to children's movies with engineering themes, such as "The Lego Movie" and "Despicable Me," to help students see that they already understand some aspects

PLAYING WITH THE CONCEPTS

STEM Superstar places engineering within the larger STEM framework, demonstrating for kids that their favorite activities—music, sports, cooking, computer games—already include components of engineering and other STEM disciplines.

STEM education is a national priority as the U.S. looks to secure its economic future beyond the 21st century. It is particularly critical within DOD, where STEM professionals are necessary to ensure national security.

FIGURE 1



	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	Total Average
Q1	4.77	4.68	4.63	4.65	4.58	**4.63**
Q2	4.64	4.66	4.66	4.73	4.67	**4.69**
Q3	4.31	4.42	4.10	4.27	4.09	**4.24**
Q4	4.72	4.71	4.61	4.71	4.69	**4.68**
Q5	4.78	4.74	4.65	4.48	4.58	**4.66**

DATA SPELL SUCCESS

Survey data gathered from the first four years of the STEM Superstars program yielded a 62.34 percent response rate among participating teachers, with program results consistently in the upper ranges of a 5-point scale for each of the five questions in the survey.

of engineering. This discussion leads to the first core concept: Engineers solve problems.

Once they master this simple definition, we place engineering within the larger STEM framework, showing pictures of children participating in sports, music, cooking, computer games, and so on. We encourage them to identify and explain their favorites. From here, we discuss how these activities reflect the characteristics of each core STEM area. This leads to our second concept: STEM is part of what you love to do every day.

After the formal lesson, we discuss the engineering design process, place the students into teams and present the "mission" that will make them STEM Superstars. The engineering design process used correlates to the Engineering Is Elementary curriculum developed by the Museum of Science, Boston, and taught in Maryland schools, creating a bridge between the program and what students are taught in the classroom.

Missions include such challenges as designing a moon vehicle (second grade), designing a superhero technology (fourth grade) and envisioning new technology to help students succeed in school (fifth grade). Each team receives a box of "stuff" containing odds and ends readily available at any home improvement, craft or dollar store. Students tackle each step, from concept and design to test and improve, to develop their technology prototype.

At the end of each session, teams discuss their process and present inventions to the rest of the class. Inventions are as diverse as the second-graders' "super-moon-buggy-party-limousine 3000," the fourth-graders' telekinesis-granting "mega-mover helmet" and a "gym-bot" created by fifth-graders to help special needs students participate during physical education class.

CELEBRATING SUCCESS

"Every engineer must be creative, smart, hardworking and one of a kind," I tell each class as we wrap up our time together. That is the formula for success. And for those students who worry that they might not be smart, we tell them that being smart is about believing in yourself, because the one thing every engineer has in common is that they never give up.

At the conclusion of each classroom session, whether they completed an entire project or were stuck at the initial design, the students have succeeded in creating something and are declared STEM Superstars. This is intentional, as one of the key barriers to STEM is the idea that it is too difficult; program success reinforces that they are smart, creative and capable of being engineers.

THE LONG GAME

While there may not be a direct correlation between a program like STEM Superstar and long-term success in STEM fields, feedback from teachers shows that there is an immediate increase in interest among participants. Their input also demonstrates that the program design is successful from conceptual and educational standpoints. The final data for the full five-year cycle are not yet available; however, results from the first four years point to the program's success in meeting its objectives.

At the close of each weeklong program, all participating teachers receive a survey to rate STEM Superstar on five criteria:

- **(Q1)** Overall program satisfaction.
- **(Q2)** Grade-level appropriateness.
- **(Q3)** Increase in student interest in STEM.
- **(Q4)** Effectiveness of presentation of key concepts.
- **(Q5)** Educational validity.

Over the first four years, we achieved a 62.34 percent response rate among

participating teachers, and program results were consistently in the upper ranges of the five-point Likert scale used. (See Figure 1.)

The lowest-scoring response across all grades was to Question 3, which measured a visible increase in student interest in STEM following the program. Yet even as the lowest-scoring question, the overall score was 4.24 out of 5, with the greatest increase recorded among second-graders and the lowest occurring among fifth-graders. The remaining four areas all scored about 4.6. Of particular interest was teacher response to the educational validity of the program (Q5), which was 4.66 out of 5, demonstrating that the teachers found the program beneficial.

A review of the total data for each question supports the summary, showing consistency in response in the range of 4 to 5. Selecting zero corresponded to "no comment," so the more important signifier of problems within the program would be scores of one. Teachers gave only eight scores of 1 from 2,210 total responses (442 completed surveys with five questions each). If you add in the scores of 2, you get a total "dissatisfied" score of 18, or less than 1 percent of all responses.

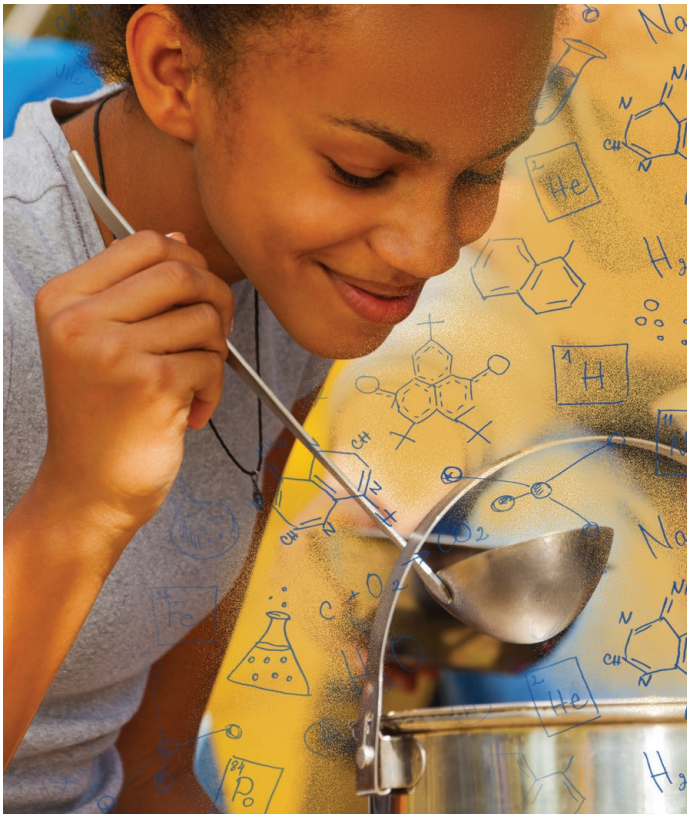
In addition to the quantitative responses, teachers suggested what they would change about the program. The overwhelming recommendation is that we extend the program to a two-hour session or that the program visit each school annually.

CONCLUSION

From its conception, the goal of STEM Superstar was to introduce engineering in a low-threat, high-entertainment environment that promoted the idea that STEM is for everyone. In the same spirit, we designed STEM Superstar to be easily duplicated and executed anywhere with minimal financial resources or material support. Teachers or facilitators need only pick a popular, age-appropriate movie or theme that reflects the STEM concepts they want to teach, gather a dozen random items such as paper plate holders, sponge hair curlers, pingpong balls and potato chip bag clips, give the students a "mission" and stand back. From concept to supplies, schools, youth centers or even home schools can easily replicate STEM Superstar, and the data gathered over the initial four years justifies continuing the program locally and encouraging its implementation in other communities.

As the U.S. moves further into the 21st century, the need to continue the historic pace of American innovation necessitates an ever-increasing focus on creating a pipeline of qualified STEM professionals. Without such a pipeline, the country risks its economic security and its place within the global community. Through STEM Superstar, we are building that pipeline one child at a time—no trains required.

For more information on CERDEC STEM Outreach or to contact the author, go to ***www.cerdec.army.mil****.*



BRINGING STEM HOME

Selling kids on STEM can be difficult, as they often perceive it as too hard or too "uncool" to pursue. STEM Superstar seeks to engender an "I can" attitude by framing lessons on science, math and engineering within ideas and activities students know and enjoy.

MS. ERICA FINEMAN-BERTOLI is the team lead for the Educational Outreach Program at CERDEC, at Aberdeen Providing Ground, Maryland. She holds an M.A. in communication and leadership from Gonzaga University and a B.A. in communication and public relations from Rutgers University. She is a graduate of the Defense Information School at Fort Meade, Maryland.

SPLASH, ZOOM

Alfredo Ramirez, a volunteer from the U.S. Army Test and Evaluation Command, helps Ayrika Anderson from White Station Middle School, Memphis, Tennessee, at a recent eCYBERMISSION event. Army volunteers are key to the success of the AEOP—in 2016, more than 800 helped mentor competitors and judge solutions to community problems in the "world's largest online science fair." (Photo by Conrad Johnson, RDECOM)

Building *a Love for* Math and Science

RDECOM's STEM outreach program targets students from kindergarten to college.

by Ms. Argie Sarantinos-Perrin

Knocking down a stack of blocks, then backing up to switch directions, a robot effortlessly moves around a local school as a group of children watches and waits for their turn to operate the remote control. The children marvel at the hodgepodge of whirring motors, nuts and bolts, the culmination of their hard work in a science, technology, engineering and mathematics (STEM) robotics competition.

Through STEM experiences, competitions and research apprenticeships, the Army Educational Outreach Program (AEOP)—managed by the U.S. Army Research, Development and Engineering Command (RDECOM) on behalf of the assistant secretary of the Army for acquisition, logistics and technology—offers an array of educational opportunities for children from kindergarten through college. As a major subordinate command of the U.S. Army Materiel Command, RDECOM is working with AEOP and its academic and industry partners to develop the workforce of the future.

"Even if students don't go into a traditional science or mathematics field, formal and informal STEM education helps children develop problem-solving and critical thinking skills that will help them in any career field," said Louie Lopez, chief of RDECOM human capital planning and development and STEM education outreach. "One of our goals is to get children excited about math and science, beginning in kindergarten, so that it will hopefully carry through high school and into college."

According to the 2015 results of the Program for International Student Assessment (PISA), students in the United States scored 496 in science literacy—lower than 18 education systems worldwide. Students in Singapore had the highest score, 556; the lowest, 332, was in the Dominican Republic.

PISA, which is administered to 15-year-old students every three years, evaluates education systems worldwide in science, mathematics, reading, collaborative problem-solving and financial literacy. More than a half-million students in 72 countries took the two-hour test in 2015. The

SCOUTS DO STEM

At APG's annual STEM in Scouting Day, Scouts have an opportunity to earn merit badges in various STEM categories. APG volunteers, including scientists, engineers and chemists, work with the Scouts to cultivate critical thinking skills that will enable them to be more competitive in the workforce. (Photo by Tom Faulkner, RDECOM)

HANDS-ON LEARNING

Boy Scouts from Maryland and surrounding states participate in the October 2016 STEM in Scouting Day at APG, the nation's largest scouting STEM event of its kind held on a military installation. Even if event participants don't go on to careers in STEM or with the military, AEOP's outreach helps build literacy in science and math, where U.S. students trail their peers in many other countries. (Photo by Tom Faulkner, RDECOM)

Organization for Economic Cooperation and Development, which promotes economic growth, prosperity and sustainable development, sponsors PISA.

Mathematics proficiency is even lower for students in the United States than science literacy. Students scored 470, placing them squarely in the middle, below 36 other education systems. Students in Singapore again earned the highest score, 564, and students in the Dominican Republic the lowest, 328.

The Army has supported STEM educational opportunities for more than 50 years. While previous efforts were funded through grants and contracts, AEOP, which was formed in 2004, awarded a cooperative agreement in 2010 to ensure a cohesive and collaborative approach to its programming, leveraging expertise from academia, industry and nonprofit organizations. In 2015, AEOP recompeted the agreement, awarding it to Battelle and its consortium partners from academia, industry and nonprofit organizations. RDECOM represents the Army science and technology community on the AEOP consortium on behalf of the deputy assistant secretary of the Army for research and technology.

"One of my first events was a STEM night in Cecil County, Maryland, where I saw folks from across the command giving a demo with a hands-on experiment," said Jyuji Hewitt, former RDECOM executive deputy to the commanding general. "To see and feel that energy is so uplifting, and these one-day STEM events are key to promoting a more sustained STEM engagement such as AEOP." Hewitt, who recently retired from government service after 38 years, had oversight of the Army STEM program when he joined RDECOM in 2013.

HAPPENING NOW: SCIENCE

A student conducts an experiment at a 2016 STEM Expo at APG. The Army's efforts to encourage STEM literacy are multipronged, including one-day events like the expo along with ongoing mentorship. Numerous organizations in the APG community meet to collaborate, discuss upcoming events and share best practices in STEM outreach and education. (Photo by Conrad Johnson, RDECOM)

AEOP activities rely on adult participation, including Army scientists and engineers who serve as mentors, judges, presenters and teachers. In 2016, these mentors worked in STEM events with almost 31,000 AEOP students in the U.S., Europe, Asia, Australia, American Samoa, Guam and the Virgin Islands, as well as military dependents from DOD Education Activity schools, which serve military dependents worldwide where there are sizable populations of them.

"Engaging world-class scientists and engineers who work in our state-of-the-art research laboratories and engineering centers to mentor AEOP activities is a unique aspect that the Army offers to STEM education," said Lopez. Students often work alongside Army engineers and scientists in labs on research projects. Many of the 135 universities and colleges that partner with AEOP offer research apprenticeships that expose students to unique STEM learning experiences.

RDECOM, based at Aberdeen Proving Ground (APG), Maryland, also collaborates with local STEM efforts like the Defense Threat Reduction Agency's Joint Science and Technology Institute, a two-week residential research program that enables high school students and select teachers to work in world-class labs at APG.

RDECOM's U.S. Army Communications-Electronics Research, Development and Engineering Center at APG offers real-world paid internships in science and engineering for students 16 or older. At the end of their internships, the students, who work with professional engineers and scientists, present their research to APG leadership and local industry partners.

In addition to educating students about fundamental STEM skills, there are other benefits to mentoring, including teaching children about the science culture and the importance of honesty, integrity and objectivity in scientific research. It also teaches children how to compete; many of the programs, such as AEOP's eCYBERMISSION competition, are competed at state, regional and national levels.

ECYBERMISSION, a web-based STEM competition for students in grades six through nine, is one of AEOP's largest efforts. Dubbed the "world's largest online science fair," the program, which is in its 14th year, involved 20,607 students and 802 team advisers in 2016. Using either a scientific method or the engineering design process, teams of three or four students propose a solution to a real problem in their communities and compete for state, regional and national awards and recognition.

In 2016, a team of sixth-graders from Puerto Rico won the eCYBERMISSION national competition for their work on an interactive website that serves as a warning system for people in their community afflicted with respiratory issues from the effects of Saharan dust. (Trade winds blow dust from the Sahara Desert approximately 7,000 miles to Puerto Rico and other areas, carrying fungi and other particles that affect people with respiratory problems like asthma.) The team of four girls worked with the National Oceanic and Atmospheric Administration to observe and analyze the current Saharan dust levels through satellite data or imagery. They used the information to create graphs, essays and surveys, which were shared online with their local community.

The National Science Teachers Association (NSTA) runs eCYBERMISSION. NSTA is a member of the AEOP

THE VICTORIOUS CHICAS

Members of eCYBERMISSION Team Las Chicas and their supporters, from left, Jyuji Hewitt, Frank Bohn, Ingrid Rapatz-Roettger, Janat Khan, Luz Figueroa-Rodriguez, Janeliz Guzman Acevedo, Bria Roettger, Staff Sgt. Jose Roldan, Command Sgt. Maj. James Snyder and Sgt. 1st Class Ernest Robledo. Khan, Figueroa-Rodriguez, Acevedo and Roettger, sixth-graders from Puerto Rico, won the eCYBERMISSION national competition in 2016 for their work on an interactive website that serves as a warning system for people in their community who suffer from respiratory problems caused by Saharan dust. (U.S. Army photo)

consortium. NSTA works with science teachers to define the next generation of each state's math and science standards and mission objectives, as well as common core standards that outline what students should know and be able to do at the end of each grade in mathematics and language arts.

At the conclusion of eCYBERMISSION 2016, Purdue University, which conducts AEOP evaluations year-round, issued a report that addressed questions related to the program's strengths and challenges, benefits to participants and the overall effectiveness in meeting AEOP objectives. The report drew on student and team adviser questionnaires and focus groups, observations from the national judging and educational event and the eCYBERMISSION annual report.

Purdue is also conducting a longitudinal study to evaluate the impact of AEOP on participants' professional careers, as well as their career paths over five to

OPPORTUNITIES FOR ALL AGES

AEOP offers a collaborative, cohesive portfolio of opportunities, including:

Camp Invention (kindergarten – fifth grade)
A summer STEM enrichment experience featuring collaborative learning opportunities led and administered by local teachers. The Army provides engagement scholarships for students who are nominated by teachers in locations where the Army has research laboratories. Students are encouraged to continue direct engagement with the research facilities through the GEMS program.

Junior Solar Sprint (fifth – eighth grade)
A free educational program in which students design, build and race solar-powered cars. Students develop teamwork and problem-solving abilities, investigate environmental issues and gain hands-on STEM skills to create the fastest, most interesting and best-crafted vehicle possible. Students can compete in local races or take part in an online competition.

eCYBERMISSION (sixth – ninth grade)
A web-based STEM competition with teams of three to four students that propose a solution to a real problem in their communities. Students compete for state, regional and national awards.

Gains in the Education of Mathematics and Science (GEMS) (fifth – 12th grade)
A summer STEM education program that provides students and teachers with hands-on learning experiences in professional laboratories, working alongside high school and college-age mentors and senior Army scientists and engineers. One- to four-week sessions range from beginning to advanced activities.

seven years. According to this year's report, 97 percent of AEOP alumni are interested in pursuing STEM careers, and 52 percent remain connected with their mentors after their AEOP experiences ended.

Students are also measured on their knowledge of Army and DOD STEM careers. "Students often believe that they need to join the Army and become a Soldier to have a government career, so part of the outreach involves educating the general public about the various student opportunities in STEM, the great work that our civilian scientists and engineers do in support of our Soldiers and our nation, and the various government career paths and job opportunities," said Lopez.

CONCLUSION

While the Army has responded to the critical need for an agile and resilient STEM workforce, diversity remains an issue. According to the Purdue 2016 eCYBERMISSION report, gender distribution was balanced—49 percent of participants were male and 51 percent were female. Ethnicity, however, was unbalanced—49 percent of the participating students were white, 18 percent were Latino and 8 percent were African-American.

The Army is working to close the minority gap with such events as the annual Black Engineer of the Year Awards (BEYA) and the Hispanic Engineer National Achievement Awards. During the 2017 BEYA, more than 100 scientists and engineers from DOD received awards and special recognition honors. The BEYA conference also teaches students about STEM careers in all service branches and encourages young professionals who attend the event to network with recruiters.

Networking may be key to hiring professionals with strong STEM skills to fill vacancies that occur in the next five years, when close to 40 percent of the RDECOM workforce is eligible to retire. "We need to be heavily invested in building the future talent to allow the Army, the Department of Defense and the defense industrial base to have enduring access to homegrown U.S. talent," said Lopez.

For more information, go to ***www.usaeop.com****.*

MS. ARGIE SARANTINOS-PERRIN, a public affairs specialist for Huntington Ingalls Industries – Technical Solutions Division, provides contract support to RDECOM. She holds an M.S. in professional writing and a B.A. in mass communications from Towson University. She has 11 years of public affairs experience supporting DOD.

UNITE (ninth – 12th grade)
A four- to six-week precollegiate summer program for high school students from groups that are historically underrepresented and underserved in STEM. Held at higher education institutions nationwide, UNITE gives students the opportunity to experience hands-on, rigorous academics and career exploration in STEM fields.

Junior Science and Humanities Symposium (ninth – 12th grade)
Students compete for scholarships and awards at regional and national levels by presenting the results of their STEM projects before a panel of judges and an audience of their peers.

Internships (high school and college)
Provide students with hands-on research experiences in military and university laboratories. Students are mentored and trained by senior Army or Army-sponsored researchers while they conduct real-world research. Opportunities include:

- Science and Engineering Apprentice Program.
- Research and Engineering Apprenticeship Program.
- High School Apprenticeship Program.
- College Qualified Leaders.
- Undergraduate Research Apprenticeship Program.

Scholarship and Award Opportunities (undergraduate and graduate)
AEOP promotes opportunities for students to continue their pursuit of STEM education, offered by DOD. Programs include:

- Science, Mathematics and Research for Transformation.
- Defense Scholarship for Service Program.
- National Defense Science and Engineering Graduate Fellowship.

Professor Linda A. Hill

?
CRITICAL THINKING

First, Manage YOURSELF

In 30 years of studying and teaching leadership, Harvard Business School Professor Linda A. Hill has seen the numerous ways that understanding oneself and the organization well makes for better managers and leaders who can build thriving teams.

by Ms. Margaret C. Roth

If it seems to you that managing or leading in government and managing or leading in business have nothing in common, Dr. Linda A. Hill has a story or five to tell you. Hill has made it her life's work to study, from a global perspective, what makes a good manager a good leader, and vice versa. What she has learned and teaches as the Harvard Business School (HBS) Wallace Brett Donham Professor of Business Administration holds lessons for managers and leaders of all stripes.

Hill has the added perspective of having grown up in the Army in the Vietnam War era, one of four children of now-retired Medical Service Corps officer Lt. Col. Clifford Hill Sr. and his wife, Lillian, who, with her sense of adventure and curiosity, made their highly mobile life look easy. Posted to places as different as Germany and Thailand, the Hills took advantage of their space-available travel opportunities to see the world aboard military transport.

So it was natural for Linda Hill to be drawn to ethnography, the study and systematic recording of cultures. She started by earning a B.A., summa cum laude, in psychology from Bryn Mawr College in 1977. Continuing her study of organizational theory and behavioral sciences, Hill received her M.A. in educational psychology, with a concentration in measurement and evaluation, from the University of Chicago, and went on to earn a Ph.D. in behavioral sciences there.

At that point, someone recommended that she pay a visit to the Harvard Business School, which was looking for people from the social sciences as opposed to business. She did, finding it a very

SETTING THE CONTEXT

Hill speaks in London about her book "Collective Genius: The Art and Practice of Leading Innovation," co-authored with Greg Brandeau, Emily Truelove and Kent Lineback. The title refers to a piece of wisdom that many companies noted for their innovation—including Pixar and Google—recognize: Truly good leaders help combine the little bit of genius each team member brings. (Photo by fyfephoto.com)

attractive environment, and set her sights on joining the HBS faculty, starting by completing a postdoctoral research fellowship there to gain more business expertise. Now she is fully immersed in studying leadership, globalization and innovation.

Hill's personal and professional experiences—traveling the world, watching her dad establish himself at each new hospital administration job and establishing her own body of work in the world of academia—have helped make her both a masterful storyteller and a world-renowned analyst of leadership practices. Hill is the co-author, with Kent Lineback, of "Being the Boss: The 3 Imperatives of Becoming a Great Leader," and, with Greg Brandeau, Emily Truelove and Kent Lineback, "Collective Genius: The Art and Practice of Leading Innovation." She is also the author of "Becoming a Manager: How New Managers Master the Challenges of Leadership."

Army AL&T interviewed Hill May 9 to hear her views on the personal and professional development of managers into leaders.

Army AL&T: Your dad was [in the] Medical Service Corps. Having grown up around the Army, did you ever consider going into the Army yourself?

Hill: No, I never did. I enjoyed it, but I think I always wanted to be a professor. I pinch myself because I feel like I found exactly the right career, and somewhat by accident. I didn't know anything particularly about business, because my father was in the military. None of my relatives were in managerial positions in business; some were factory workers or coal miners. But I really loved the fact that Harvard Business School focused on both theory and practice. I wanted to do work that made a difference in people's lives and livelihoods.

Army AL&T: What is your view on the fundamental difference between leading and managing?

Hill: Well, I am actually a protégé, literally, of John Kotter [an internationally known scholar and author on leadership and change] and Warren Bennis [the late leadership scholar, also a prolific author]. They taught us all about the important distinction between leadership and management: Leadership is about dealing with change, and management is about dealing with complexity. They helped us understand that no matter what your formal authority is, usually you have to deal with both. Sometimes I worry that most people would rather be a leader than a manager, and usually both are necessary to sustain organizational success.

When John and Warren were first writing about this, they were really focused on the fact that most companies, many large companies, were overmanaged and underled. Today, we live in a world that is more complex and dynamic, and I think we have many large companies—and sometimes even small companies—that are undermanaged and underled because we face so much complexity and turbulence in today's global economy.

Army AL&T: Are leading and managing things that have to be refreshed on a regular basis, or do you mostly learn them by doing?

Hill: There are two things we know for sure. Managers mostly learn by doing and with the assistance of others; we are all social learners. No matter what your position, usually some management and some leadership is required. You may be better at one than the other, but you don't have to do it all yourself. One of the things that we [at HBS] try to do, that I presume is consistent with the military, is to help individuals in a position of formal authority understand that you need to build a team. You want to have people around you who complement your particular strengths or weaknesses. You have to work with those who come at their work differently than you do.

We all need to be prepared to refresh, update and sometimes even transform ourselves. We talk about the importance of lifelong learning, particularly given how dynamic the world is. You can't assume that you know all that you need to know and stop. You have got to be prepared to learn from others. For instance, we all have to learn to take advantage of the opportunities and challenges new technology brings. We have to continually update our functional expertise. We are all really struggling to keep up.

What we also see—and the military really does have an advantage here—is that there has to be a common sense of purpose that matters, if the group is going to be willing and able to innovate together.

Army AL&T: What is making it harder to lead now? Is it the technology? The pace of technological change?

Hill: There are a number of things. It is harder to sustain success in an organization these days. The world, the global economy, is more competitive than it used to be, right? And it is a fairly unforgiving economy. Organizations need for their leaders to be better at what they are doing. This is an obvious example, but if you were a retailer [20 years ago], you didn't have to worry about disruptors like Amazon or Alibaba [a Chinese e-commerce company] coming in and taking away your market share.

Demographics, technology, growing expectations of diverse constituencies, the global economy: Any number of things make it harder. We did a study in which we asked C-suite executives around the world, what does it take to be a high-potential [employee] in your organization, and what did it take 10 years ago? What they told us was, it is harder to be a high-potential today. They said that 10 years ago, if you were a value creator, you could be considered a high-potential. But now if you want to be considered a high-potential, it is not enough to be a value creator; you also must be a game changer.

A value creator is someone who knows how to identify and close what are referred to as performance gaps, whereas a game changer is someone who knows how to identify and close what are referred to as opportunity gaps. A performance gap is a gap between where you are now and where you should be, whereas an opportunity gap is a gap between where you are now and where you could be.

If organizations don't have enough people who know how to be game changers, they may be able to execute their current strategy, but they will not be agile, able to adapt. And if you want to grow as an organization and thrive, you need to be able to change and innovate.

A GROWING, ACTIVE FAMILY
Medical Service Corps officer Lt. Col. Clifford Hill Sr. and his wife, Lillian, raised their daughter Linda and her three younger siblings around the world, as Hill's Army career took the family to multiple continents. In addition to the perks of travel, being raised in the Army showed Linda Hill some key leadership challenges up close, including the importance of contextual intelligence and emotional intelligence as her father adjusted to each new assignment. (Photo courtesy of Linda A. Hill)

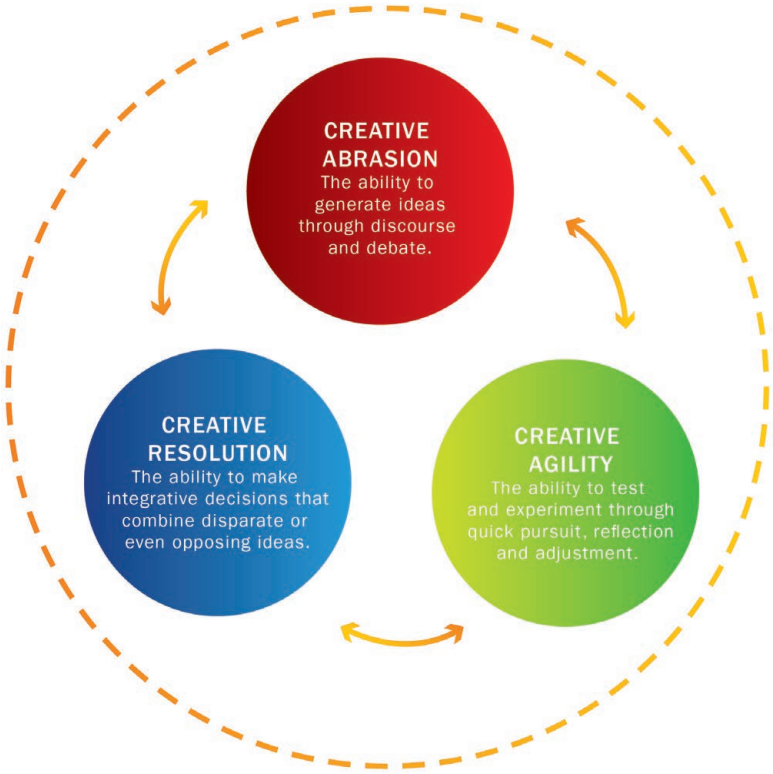
Another thing that is happening is that customer expectations are always rising. So customers expect more from companies, but they don't necessarily want to pay proportionately more for what they expect. When the iPhone was first introduced, Apple found that customers wouldn't pay a premium price, and Apple had to reduce it. I suspect the military faces similar pressures—more is expected from the military but, given your budgets, you have to figure out how to do more with less.

I haven't done any work with the military. But I know there is a lot of effort to modernize the Army, to make sure that you have the talent that can actually use the kinds of high-tech equipment, artificial intelligence or data analytics we see these days. And I think that in the military, you have always had demographic diversity—probably more than we see in business—and you probably have even more these days. And for the military, the stakes are as high as they get—national security and people's lives.

We are living in a relatively slow economy with all kinds of political uncertainties. Budgets are very tight, and you need to have money to invest in new technologies and to attract and retain top talent. I can only imagine that in the military, you truly need great leaders, not just good ones, who can cope with the complexity of issues and constituencies and the dynamism you face.

We talk about those three imperatives of leadership—managing yourself, managing your team, and managing the network of all those people over whom you have no formal authority but you are deeply dependent on to get your job done—both inside and outside the military. Everybody cares about what the military is doing. Managers everywhere have to figure out how to manage up, manage across and manage down. Even the very senior ones—and they also have to deal with Congress and the public.

FIGURE 1



THREE ORGANIZATIONAL CAPABILITIES TO BUILD

Increase your team's ability to solve problems innovatively by replacing the judgment-free—and occasionally therefore decision-free—practice of brainstorming with the concept of creative abrasion, whereby members of the team advocate for their ideas but are also open to rigorous questions. Moving from idea to prototype or other quick experiment gives you creative agility. The essence of creative resolution is that the team knows exactly who's going to make the final decision, but all viewpoints are welcomed during the search for a solution. (SOURCE: Figure III-2 from "Collective Genius: The Art and Practice of Leading Innovation," by Linda A. Hill, Greg Brandeau, Emily Truelove and Kent Lineback. Reprinted with permission.)

Army AL&T: In the introduction to "Being the Boss," you say your dad taught you that integrity and caring are at the heart of great management. What did your Army life tell you about the role of adaptability in an organization that is now 242 years old and is bound to some extent by tradition and yet is trying to invite intellectual diversity?

Hill: One of the things I saw my father have to do is go into many different kinds of settings and figure out what was going on, establish credibility, develop a strategy and start to deliver in whatever context he found himself in. So, like in business, military leaders have to have both contextual intelligence—the ability to diagnose situations—and emotional intelligence, the ability to build relationships with diverse others quickly and in new environments.

As you may or may not know, in the private sector many people do not make these transitions very successfully. Part of the reason is because they don't have the contextual intelligence. The other part is that they haven't built up the networks necessary to actually deliver and get work done, because it is usually the informal network that you really have to rely on, particularly if you want to do things like innovate.

Army AL&T: Can you define contextual intelligence and emotional intelligence?

Hill: Emotional intelligence is usually defined as how self-aware and how socially aware you are. Some people are empathic and are good at interpersonal relationships. But that does not guarantee that they are socially aware, able to read organizational and political dynamics and figure out how to impact or transform the system. The more self-aware you are, and the more socially aware you are, the more likely it is that you can manage yourself effectively. Managing yourself is the core imperative of leadership. Leadership is always about trying to use yourself as an instrument to get things done, and that means being able to match your intent with your impact.

Contextual intelligence relates to your capacity to learn what is important about a context or a circumstance, [understanding] what you need to pay attention to and adapting your behavior accordingly. Two people doing the same job in different contexts—say, Afghanistan as compared with Germany—will face different challenges and may even need different skills. Each needs to be able to figure out what matters in their particular context and then to adjust their action plans accordingly.

Army AL&T: On the day-to-day level, are there specific questions that a manager or a leader should ask him or herself to establish emotional and contextual intelligence?

Hill: You might think you are empathic, but that might not be how your colleagues perceive you. This is why a lot of organizations have 360-degree feedback. One of the things we have the executives do, and the MBAs, is get 360-degree feedback on their emotional intelligence. They get peers, bosses and direct reports to assess them on a variety of interpersonal and organizational skills, from managing conflict, to exercising influence, to inspiring others. There is a whole series of questions about how they manage conflict, how they manage influence, how aware they are of their strengths, their weaknesses, their emotions. Most of us think we are doing fine, even on very fundamental things, such as integrity—but it is difficult to figure out whether you are actually matching your intent with your impact without that 360-degree feedback.

In "Being the Boss," we talked about the importance of trust. There are two dimensions of trust, your character and your competence. People want to know that you are well-intended and that you want to do the right thing. That's what character is about. Competence is about whether you know the right thing to do. Now you may know what the right thing to do is and you may, in fact, be well-intended. But what matters? The truth matters.

Perception matters, too: Are you behaving in ways that provide evidence for people that you are, in fact, trustworthy? One of the things that we frequently find with our executives and MBAs is that people who have been very successful and are in some ways very ambitious are not particularly self-aware or empathic. And they are rather surprised to learn that. One

THE MORE BRAINS, THE BETTER
The genius hitting upon a brilliant breakthrough alone in her lab is the exception. Most innovations come from the friction and competition of a group—but it has to be supportive competition. Research shows that fostering a feeling of "psychological safety" is one of the most important things good leaders do to encourage innovation. (Image by ARTQU/iStock)

of the ways we help them learn that is by letting them collect feedback from people who they think know them and should have a sense of them; often they discover that there is a gap.

Army AL&T: What is the hardest thing about developing emotional intelligence? What are the big challenges?

Hill: One is that we can know what our intentions are, but other people don't, right? They just see our behavior. It is as if we assume that people can read our minds. And I think that's why it can be rather shocking sometimes to learn that people don't perceive us as trustworthy. Maybe they just don't know you very well. Research has suggested that when people don't know you, they don't necessarily feel positively about you or your behavior.

This can be especially true if you are a star; if your mind works very quickly, you might tend to jump from the data to conclusions without explaining your reasoning. That's why teachers made us show our work when we did math problems. If you are really good at something, you might easily become impatient with people. And people are very good at reading nonverbal signals, right? They can see your frustration when they appear not to get something that, frankly, you haven't even explained, and that doesn't make them feel very good.

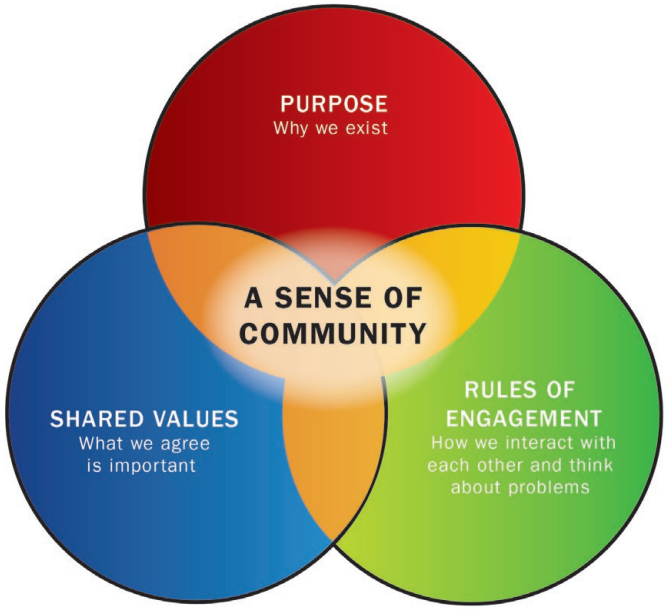
So the two questions that I always tell people to ask themselves are, how do people experience you, and how do people experience themselves when they are with you? Because leadership is always about an emotional connection.

You can be very talented and know you are well-intended; you can do the job and think people are enjoying working with you, that the whole group is successful, etc. But it may be that you are actually not making space for other people's ideas and they feel pretty left out; that they see it as being all about you and not necessarily what the group wants. Or maybe you are very talented and pushing people along—you are quite a pacesetter, as it is called—but you are burning out people with your pace. Maybe you are not actually providing them with the development they need or delegating enough; you might be micromanaging and making them simply follow your path. These are the kinds of things that get in the way of talented people actually developing empathy and/or being trusted by individuals.

The other thing is, if you don't inquire a whole lot—if you are a person who always advocates—then not only do you not learn new things, it is also insulting to people. So, for example, if we are peers who are collaborating on a project in the military and you don't inquire, you don't ask any questions, that sort of makes me feel like you don't see me as someone you can learn from.

There is some evidence that the more talented you are, the more difficulty you will have learning to lead and building trust. Because you also can be just plain intimidating. Your talent, your strengths, can become weaknesses. There is research that people who are high-potentials and ambitious and have a high need for achievement tend to be people who see

FIGURE 2



PURPOSE MOTIVATES

A common sense of purpose and a feeling that the work matters are essential for a group to be willing and able to innovate together. Military leaders have an advantage on this score, since shared purpose and values are built into the mission. (SOURCE: Figure III-1 from "Collective Genius: The Art and Practice of Leading Innovation," by Linda A. Hill, Greg Brandeau, Emily Truelove and Kent Lineback. Reprinted with permission.)

(HELP YOUR TEAM TO) MIND THE GAPS

A performance gap is the distance between where you are now and where you should be. An opportunity gap measures where you are now against where you could be. If employees' time and energy are consumed with filling performance gaps—and if they don't trust their leaders enough to take the risk of innovating—opportunity gaps may go unfilled and the organization risks stagnation. (Image by akindo/iStock)

what other people haven't done. So when someone brings them work, they see what the person hasn't done as opposed to what they have done.

What we hear about people who are very talented, motivated individuals is that they don't give much positive feedback. That is a very common complaint. It is partly because when you are really good, you really want to make sure the whole group is going to achieve. Also, you have a lot of pressure on you to deliver. Imagine you have a child who brings home a report card with all As except for one C. You see the C; you don't see all of those As. We are sort of wired that way. And therefore we inadvertently create experiences for other people that make them feel not so good or not so special, when in fact if someone who brings home all As but for one C—that's a lot of talent there.

Army AL&T: I would like to talk about dealing with the bureaucracy, because it is such a big part of working anywhere in the government. Are there skills of particular value in building networks across bureaucratic boundaries?

Hill: Businesses today recognize the need to do what is referred to as silo busting, to be able to work horizontally. Usually in highly bureaucratic organizations, those silos and those rules are deeply embedded in the organization. But bureaucracies exist for a reason. They serve a purpose—to give us clarity about people's roles and responsibilities and formal structures. It matters [especially] when you are at war, for example, that people know what their roles are, the reporting structures, who is supposed to speak to whom and when.

Bureaucracies are not very agile, obviously. One reason is that they are so siloed, both horizontally and vertically. Vertically, communication tends to go in only one direction, from the top down as opposed to the bottom up. Horizontally, we sort of stay within our own worlds and communicate within those worlds. To be able to execute and innovate, communication needs to become more transparent, and it needs to move up and down and across the organization. As a leader, this is why you have to build that informal network, to help you figure out what is happening in the organization and to get things done, because

sometimes the formal structures are actually getting in the way.

Most innovation happens between the silos, in their adjacencies. So if you are not communicating across functions or across levels and dealing effectively with that diversity of thought, you are not going to get the kind of healthy conflict that tends to lead to new ideas.

Army AL&T: It is possible to overcome those barriers, though. So the question is, how do you make a concerted effort to forge ties across bureaucratic boundaries and get things done through the informal network you talked about?

Hill: First of all, you need to build a strategic network—which in our language is the network that allows you to scan and sense your environment, to detect what the future may bring and prepare for it. Your strategic network basically helps you figure out the performance gaps and the opportunity gaps: How do you know what your priorities should be, what you should work on? You can only know that from actually understanding what the organization's priorities are, and understanding the opportunities and challenges in your area of responsibility.

When we talk about networking, many people experience it as a dirty word or evidence that the organization doesn't work. Well, no. The only way you can know what your team should be working on is if you are talking to the right people and they are talking to you. You don't just want to have the bosses tell you what those priorities are and what the capability constraints are. You also want to be able to inform your bosses of what you know, what they should be taking into account and understanding. You want those to be two-way conversations.

So when you are building networks, you need to be deliberate and think about who do I need to be connected to, both in the military and outside the military, to understand the opportunities and the challenges that we are facing. I try to help leaders understand that that is a part of your job. The only way you can answer those questions is if you are interacting with the right people and having two-way conversations. Don't tell them, this is what I am working on and this is how you can help me. Instead, ask, "What are your pain points and how can I help you get the job done?" Then, when you set your priorities for your own team, they are more likely to accept what you are trying to do, right?

Then you also need to build the operational network that allows you to actually get things done—to close those gaps, to work on those priorities. If people don't trust you, they are certainly not going to help you work on an opportunity gap because they have so many performance gaps of their own to work on.

I always tell people, think about who you are dependent on to get your job done now. Then think about who you are going to be dependent on six months from now, and introduce yourself to those people. Because if they don't trust you, if they don't know what they can expect from you or if they can't influence you, they are not going to help you get your agenda done. Not because they are bad people, but just because we are all human. So try to build relationships with people before you actually need those relationships.

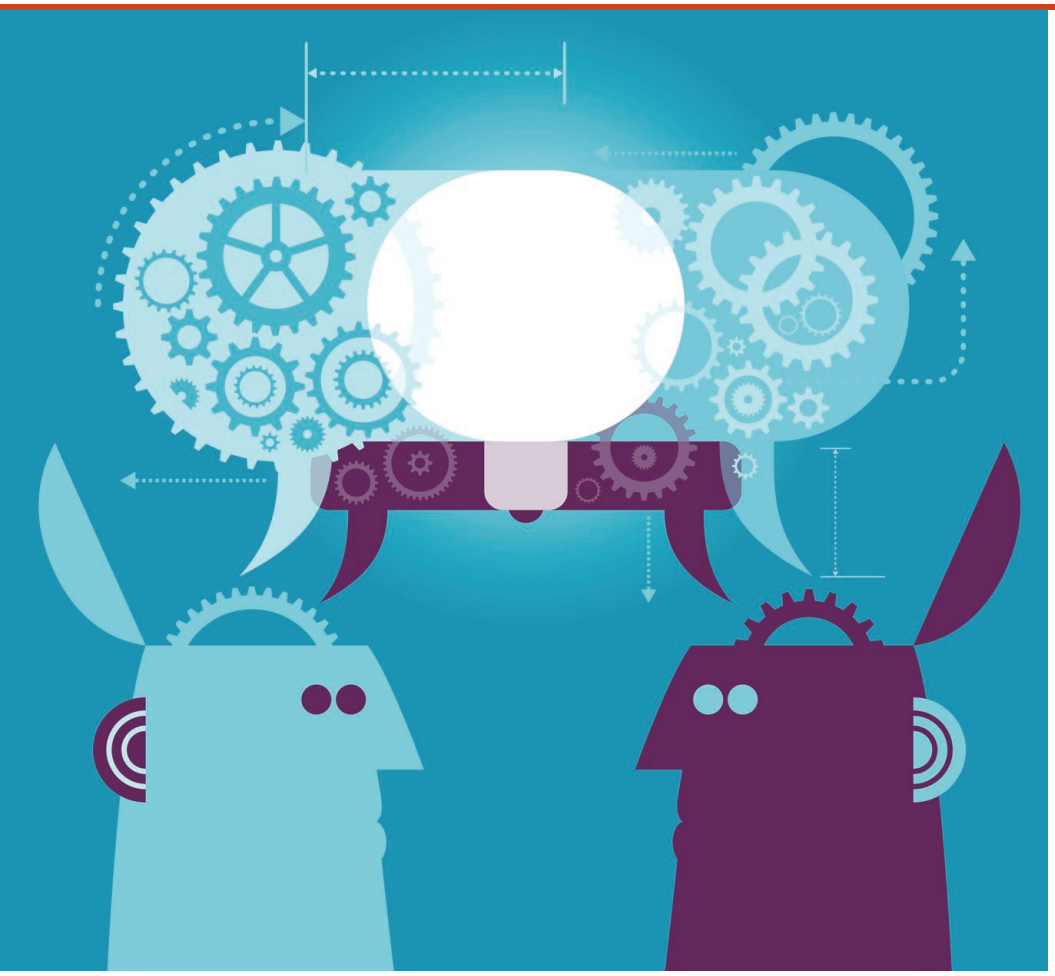
Army AL&T: I would like to talk about your work on leading innovation and "Collective Genius." Tell me about the approach that you talk about in the book.

Hill: The research on innovation is quite separate from the research on leadership, and we were looking at that connection. Often we sort of have this myth in our head that innovation is about a solo genius having an "aha!" moment. But in fact, the research has been clear for quite some time that most innovations are the result of collaborations among people who have diverse perspectives or talents.

The second thing is, we know that you really can't plan your way to an innovation; you have to act your way to it. It is a process of discovery-driven learning. There are missteps and wrong turns and, of course, actual failures.

We know that most innovations are actually a combination of ideas, often old and new. Very rarely is an innovation the result of a single idea. And the final thing is that innovation is really hard work, and

I always tell people to ask themselves, how do people experience you, and how do people experience themselves when they are with you? Because leadership is always about an emotional connection.



OPEN YOUR MIND TO EMOTIONAL INTELLIGENCE

Research by Hill and others has shown that business leaders—even very successful ones—are often surprised to find that they don't rate highly on the self-awareness or empathy scale. Without self-awareness, an executive can't manage himself properly, and without managing himself, he can't lead others. So Hill recommends asking for feedback from employees and peers, not just supervisors, to see if the way you see yourself lines up with how others see you. (Image by akindo/iStock)

it is very scary work. You have to help people be both willing and able to do the work, because it involves risk, and it is hard work to do and sustain over time. We studied individual leaders who built teams or organizations or ecosystems that were able to innovate not just once, but time and again. That is the key to this.

Army AL&T: So if you are working in the federal government and you are given a group of people and don't really have a lot of choice of who's in the group, how do you maximize the potential for innovation? The government has a vast array of very talented people, but you can't always move people around.

Hill: Most people have more potential than we realize to help with innovation. We know from our research that the process needs not only experts, but also people with a naïve eye, who are willing to ask, if you will, that "dumb question."

One of the individuals we studied told us a story about how [Apple founder] Steve Jobs went to visit [Polaroid co-founder Edwin] Land because he was trying to understand how Polaroid was an organization that could innovate. Apparently, when the scientists or technologists got stuck at Polaroid, often they would bring in arts and humanities students from the local colleges, because the students were willing to challenge the basic assumptions of the scientists and technologists. As nonexperts, they didn't know what the basic assumptions were, or they would ask a so-called stupid question because they didn't know it was a stupid question. And inevitably that naïve perspective would help the scientists and technologists break out of the box and think of new ways of doing things.

Earlier I talked about being a value creator and a game changer. No matter what your role—you can be a janitor in a hospital—you may have some ideas about what we could be doing and not just what we should be doing. As they say at Pixar, everybody has a slice of genius, so the role of the leader is to figure out how that slice of genius can be utilized to help the organization do great things.

To close an opportunity gap, by definition, you are going to have to either change something about the way you are doing things or come up with a new way of doing things. Leading innovation is about understanding that we might all have a point of view that is worth considering when you are trying to solve a problem or work on an opportunity. That is what we found in our work, a kind of democratization: Everybody can play if they are willing and able to.

Army AL&T: Does that democratization extend to decision-making?

Hill: My co-authors and I talk about three organizational capabilities related to innovative problem-solving: creative abrasion, creative agility and creative resolution. (See Figure 1, Page 80.) Creative

resolution is the capability that relates to how decisions are made. In the organizations we studied, everybody understands how decisions get made and who is responsible for the final decision. However, these leaders use a decision-making process that is more inclusive and more patient. When you do decision-making that way, it is more likely that you will be able to combine the best of the different ideas that have been proposed and come up with a solution that will address whatever opportunity you are trying to address.

Creative resolution is about not letting certain people dominate—usually the bosses or the experts. It's also not about compromising just because you want to go along to get along. It is an inclusive decision-making process, but still, in the end it is very clear who is going to make the final call.

The other two capabilities I mentioned are equally important. Creative abrasion is how you generate a marketplace of ideas in the first place. The people who are involved in trying to deal with the problem or the issue are expected to advocate for their point of view. But they are also supposed to inquire and actively listen to other people's points of view. So creative abrasion is not brainstorming, where you can say anything and do anything and people aren't supposed to judge you. It is quite the opposite. It is a competition of ideas; a heated but hopefully constructive sort of abrasion, in which ideas rub up against other ideas.

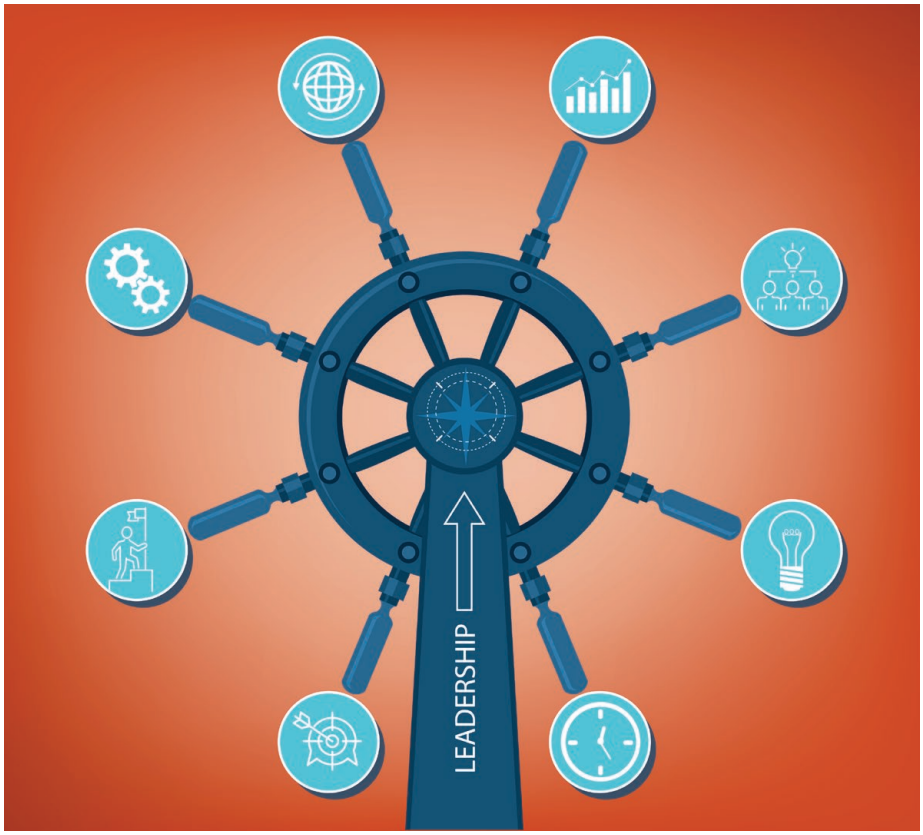
The third capability, creative agility, is about a process of discovery-driven learning. It involves experimenting, testing something out, maybe building a prototype, either a real one or a thought experiment prototype. You kind of bump it up against reality, get some feedback on how that idea works, and then make adjustments. Creative agility is about acting your way toward a solution.

So creative abrasion, creative agility, creative resolution—those are the three capabilities. You need to build a culture that allows for those capabilities to be exercised.

Army AL&T: And they have a distinct application in the military.

Hill: Yes. In fact, we just lost one of my colleagues, David Garvin, who actually did a lot of work on the military with regard to creative agility and after-action reviews. He studied organizational learning, and he thought the military would be an excellent place to study them. [Editor's note: Garvin, Harvard Business School's C. Roland Christensen Professor of Business Administration, died April 30 at age 64. His fields of expertise included business and management processes, principles of organizational learning and the design and leadership of large, complex organizations.]

Another example that relates to creative abrasion is the idea of psychological safety. I am not going to be willing to



THE MANY FACETS OF LEADERSHIP

Leadership is about handling change; management is about handling complexity. Hill sees a dearth of both in many large companies today, in part because of the demands of the global economy. (Image by USAASC/sorbetto/iStock)

engage in creative abrasion with you if I don't feel the support of the group. What we see is that if the leader doesn't provide support in an environment of psychological safety, people are too afraid to share their ideas. It is too risky. On the other hand, the leader needs to confront the person who won't refine his or her ideas, because not every idea is working to solve the problem.

What we also see—and the military really does have an advantage here—is that there has to be a common sense of purpose that matters, if the group is going to be willing and able to innovate together. Innovation leaders don't focus so much on where we as a team are going together. They focus more on why we are doing it and who we are together, our collective identity. In the military, obviously people have come together around a clear purpose to keep us safe, and they are willing to dedicate their lives to make sure that purpose is achieved. It's a little harder sometimes in business—let's say, in a company that manufactures shoes or cars—to help people understand their collective purpose.

To get innovation done in government is certainly a co-creation process among a whole range of parties. You can't push this stuff down people's throats. In fact, that's one of the things that I think leaders forget: People have to volunteer to innovate. They have to find the purpose of the work meaningful, something that they want to work on and do; something they care about enough to do the hard work of collaboration, discovery-driven learning, dealing with the failures and missteps and then working through the decision-making process. (See Figure 2, Page 82.)

The other thing we also forget about innovation is, breakthrough innovations take a long time. You know, it took 20 years for Pixar to make a full-length computer-generated movie. It took 18 years for Corning to come up with the glass that's on most of our smartphones. But you can't build an organization that's only going to innovate once every two decades. That's why I think the leaders we studied had this more inclusive definition of innovation: They said, we want to do innovative problem-solving every day, no matter what it is, and we know how to work together in a way that allows us to combine our own individual slices of genius. This is why the book is called "Collective Genius."

Army AL&T: How important do you think it is, especially in the area of innovation, for midlevel managers to get job experience outside their workplace, such as a Training with Industry program or a detail to another organization in the government?

Hill: I think it's very important. We know that people learn from experience, so you want midlevel people to have opportunities to lead for change or innovation earlier in their careers, so that they develop the risk appetite required for it and get used to leading.

It can be dangerous, though, when you promote people too fast—when you give someone not a stretch assignment, but a break assignment. I think that sometimes happens to people if they haven't been given opportunities all along the way to take reasonable stretch assignments that help them to develop the resiliency and other kinds of qualities that are quite critical to being able to lead, particularly to lead change and innovation. It is important that people have those opportunities. Maybe they get to do short tours of duty in private-sector organizations where they can be exposed to certain ideas. Something we are seeing a lot more is that in our societies, in our countries, we need more trisector leaders: people who know how to bridge and work across the private, public and not-for-profit sectors to get done some of the things that we want to resolve.

In your military context, for example, rebuilding a country after a war requires people from all three sectors to get it done properly. Working across the sectors, you get people who have different sensibilities, perspectives and transferable skills. Plus, you get that creative abrasion I was talking about. You are more likely to get innovative solutions if you can actually harness that diversity.

The bottom line is: Leadership has always been hard, but it is definitely getting harder. We do see more and more executives who understand that they cannot afford to stand still. Even if you were an exceptional leader 20 years ago, it's necessary to keep in mind that you are dealing with a more diverse workforce and a world that is becoming increasingly complex and dynamic. Leading innovation, in particular, requires a different mindset and a new set of skills that can harness diverse talents and unleash creative solutions.

MS. MARGARET C. ROTH is an editor of Army AL&T magazine. She has more than a decade of experience in writing about the Army and more than three decades' experience in journalism and public relations. Roth is a Maj. Gen. Keith L. Ware Public Affairs Award winner and a co-author of the book "Operation Just Cause: The Storming of Panama." She holds a B.A. in Russian language and linguistics from the University of Virginia.

ADDING BANDWIDTH

Paul Goetz, an electrician from Tobyhanna Army Depot in Pennsylvania, holds a guy line as communications equipment is positioned on an Air Force Wideband Enterprise Terminal (AFWET) at Offutt Air Force Base, Nebraska. AFWET is one of more than 80 joint communications systems used worldwide. A plan to add bandwidth to joint systems adopted a "go slow to go fast" approach that saved money and reduced risk. (Photo by Jacqueline Boucher, Tobyhanna Army Depot)

BUILDING CREDIBILITY

Program managers need the right mix of character and action to build a foundation of trust.

by Col. Joel D. Babbitt

Credibility gives authority and brings trust; it is the reward of good decisions, the product of consistent results and the currency that every leader deals in. If a program manager (PM) has credibility, people trust them to do what they say, and they give them the time, resources and the leadership support to do it. The opposite is also true. Indeed, as now-retired Gen. Stanley A. McChrystal noted, "Credibility equals freedom of action."

Credibility is especially key in the world of acquisition, where trust equals money, and a breach of trust can send an effort spiraling into a morass of bureaucratic red tape. Once a PM establishes credibility, oversight and controls will begin to loosen. The PM will begin breezing through potentially contentious briefings, will get calls in September at the end of the fiscal year asking if the PM can use a few million residual dollars, and overall more work will flow in their direction. These are just some of the positive effects of credibility. So how does a PM establish and maintain credibility? It's a mix of character and action. When building your project plan, some actions produce far more credibility than others.

'ACCURACY IS FINAL'

A credible PM must deliver what the user needs.

Wyatt Earp once said, "Fast is fine, but accuracy is final." In other words, it's great to be fast, but if you do not hit the target, speed doesn't matter. Applied to acquisition, that means that the PM must build the right thing, and building the right thing is not as easy as it sounds—it takes the ability to see what right is (vision) and then adjust to get it right (execution).

START SMALL

The author, right, and a communications sergeant from 2nd Brigade Combat Team, 1st Armored Division discuss updates to the Warfighter Information Network – Tactical Increment 1 during NIE 15.2 on Fort Bliss, Texas, in May 2015. A PM can improve the odds of success—and his credibility—by testing new systems on a smaller scale before taking part in larger, higher-profile demonstrations. (U.S. Army photo by Amy Walker, Program Executive Office for Command, Control and Communications – Tactical)

Are your users complaining about the size of the vehicle your system is mounted on? Then change it. Is your system too complex for the average 19-year-old recruit? Then do the no-kidding hard work of simplifying it. Are your users leaving your system in the conex, or shipping container, because it's too big and bulky? Then get innovative and shrink it. Is your material solution, or product, outdated, or maybe your users are buying something better off the shelf and turning your stuff in? Then it's time to change your material solution.

There are many structures in Army bureaucracy that are meant to make change difficult, but it can be done. In the end, it's better for the Soldier, for the taxpayer and for your credibility to make the hard right choice than the easy wrong choice.

BACKYARD TESTING

To be a credible PM, you have to pass your tests.

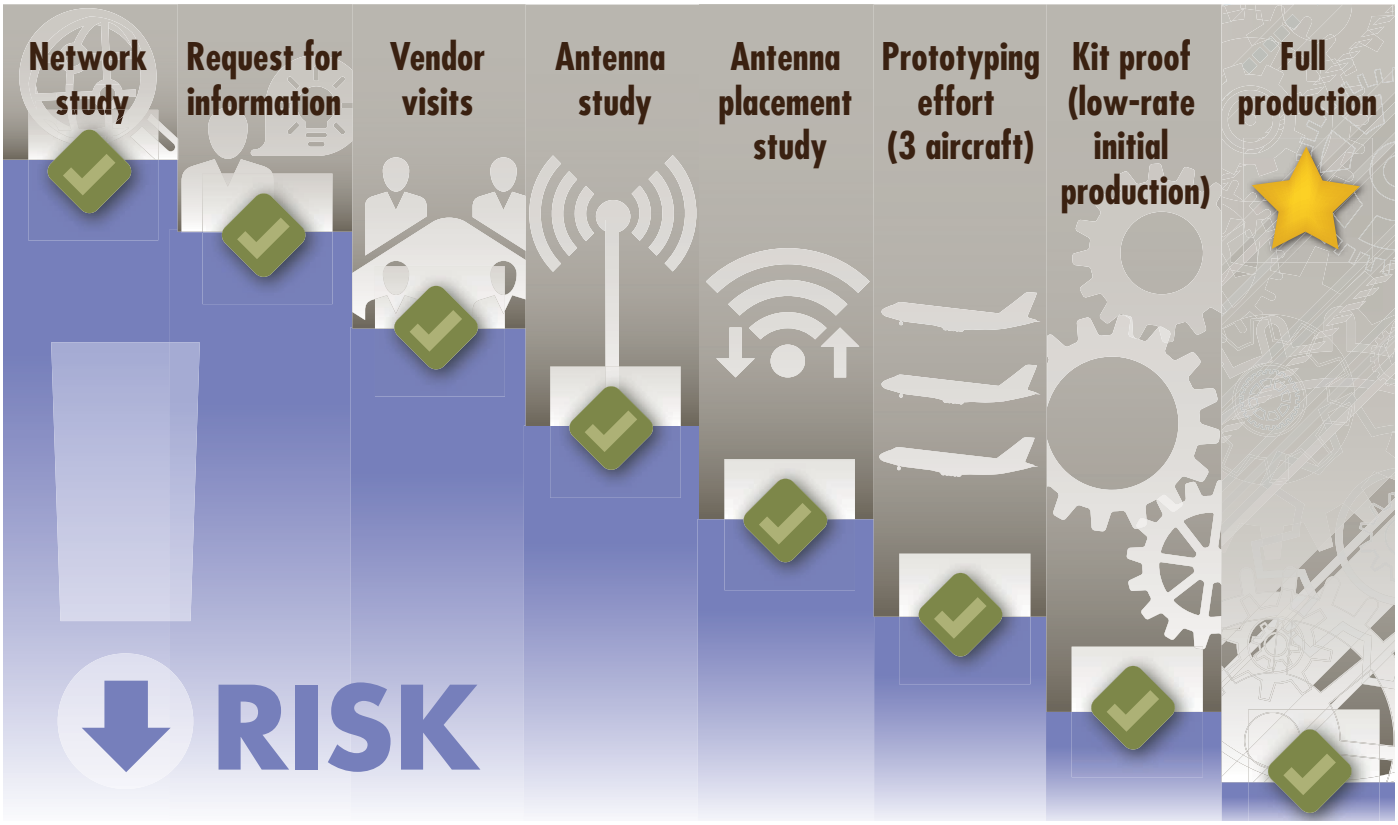
Seth Smith, a retired warrant officer, once said, "Don't ever try anything in your front yard that you haven't tried in your backyard twice." In other words, to avoid unpleasant surprises in public demonstrations and record tests, be sure to vet a capability thoroughly. In general, if your product is made for Soldiers by a lab full of engineers, you can expect that it will not survive first contact with a unit of Soldiers. So it's important to set up a number of informal events (backyard events) where Soldiers get to test the new capability before going to a record or otherwise high-visibility test event (front yard event).

After completing extensive lab testing and in preparation for a very high-visibility network integration evaluation (NIE) demonstration event, the Warfighter Information Network – Tactical Increment 1 Product Office set up a number of backyard test events with the Delaware Army National Guard's 198th Expeditionary Signal Battalion and invited vendors along. Secure Wi-Fi for command posts, tactical microwave radios, 4G tactical cellular infrastructure and other components were put through their paces. The feedback from National Guard Soldiers helped the vendor tweak its product and helped the product office tweak the manuals and employment concepts. Overall, these backyard events were key to the products' subsequent success at NIE.

Combat Soldiers, from standard infantry up to special forces, do not just roll up and start shooting at the enemy. Rather, they do rock, or rehearsal-of-concept, drills, rehearsals, and practice actions on the objective before taking direct action on an enemy objective. Treat your tests the same way; they are no-fail events. Follow the lead of the combat Soldiers and test before the test. Your users will thank you and your credibility will increase.

RISK=COST

It's important to understand that risk equals cost. Failure to wring out risk before launching a project will show in the costs. Why is that? Because unknowns have to be planned for, and unknowns are expensive. The more variables a contractor must build into a budget, the higher the overall cost will be. Risk increases cost exponentially.



LESS-RISKY BUSINESS

When USSOCOM wanted to improve communication equipment on C-17 aircraft, it followed the path outlined here, including prototyping, proofing and vendor visits. Risk declined with each step toward full-rate production. (Image courtesy of the author and U.S. Army Acquisition Support Center)

ZEROING IN FOR THE WIN

Back shop efforts, studies and prototyping: Every program office should have a number of back shop efforts ongoing. These are the things that your engineers play and tinker with, such as vendor-provided equipment acquired via purchase or no-cost loan agreements and things from other services or program offices that might meet a need in your program office. You should have back shop efforts; it shows that your engineers are curious enough to guide your program past the potential dead ends and to the right solution. Also, if you have back shop efforts churning along, you will capture the intellectual high ground in meetings with your customers and suppliers. You will not end up just going with whatever the vendors or your requirements people tell you. You will have credibility.

Studies are the secret weapon of the credible PM. They are the ultimate way for the PM to capture the intellectual high ground in their industry or area of expertise; they carry a huge amount of credibility. Commissioning a study shows that a PM has the foresight to bring in an expert to examine the alternatives and to determine the strengths and weaknesses of each potential course of action. In short, doing a study means you did your homework. Very few things will zero you in for the win like a righteous study.

Prototyping is about a lot more than just trying out different potential solutions. Building prototypes actually does a number of things for the PM. The word "prototype" lowers everyone's expectations, so if it flops, no harm, no foul—it was just a prototype. However, if it's a home run, a prototype gives the PM a jump on production. Additionally, prototyping gives the PM office time to get a jump on the paperwork required to field, and eventually get to a full materiel release.

Also, doing more than one or two prototypes gives a vendor the opportunity to shake out the production process. Finally, prototyping allows the PM to declare the core of the product as solid while

working through the little details to reach a production model. It's the ultimate soft start before milestone C and low-rate initial production.

PUTTING IT ALL TOGETHER

U.S. Special Operations Command (USSOCOM) needed to put high-bandwidth communications for passengers on U.S. Air Force C-17 aircraft. The prevailing wisdom called for adding more international maritime satellite (INMARSAT) channels on the plane. Rather than charging forward with an INMARSAT upgrade, however, the J-6 (communications directorate) acquisition and technical leads conducted a network study. In that study, they determined that more INMARSAT was a dead end: For the foreseeable future, INMARSATs could not support the number of channels needed.

After laying out all the options, they determined the solution was to install a Ku-band high-bandwidth antenna on a number of C-17s. Not an easy task, but by doing the network study up front, the J-6 had a plan for an appropriate network it could use—one that has proven to be the right solution for the better part of a decade.

The J-6 technical lead had been putting other antennas on smaller aircraft for some time, but to get it right, a request for information, several vendor visits and an antenna study were used. Through this process they discovered the only viable solution that was also sufficiently low-risk. There were many opportunities to pick answers that looked right before finding the ultimate solution, but after closer inspection they would have cost far more and taken far longer than the budget allowed.

After the network study and the antenna study, when the J-6 acquisition lead approached the Air Force program office, the estimate was six years and more than $50 million to modify 15 aircraft. Why? The answer was in the project framing. The program structure proposed by the Air Force program office was to hire a prime contractor, go through a traditional engineering and manufacturing development phase, then enter production. This left all the risk in the initial project plan, even after two studies.

The J-6 counterproposal was to work out the risk by taking it one step at a time: First, an antenna placement study to determine where on the aircraft the antenna should be located to minimize technical risk and, therefore, cost. Second, a prototype effort that modified three aircraft. Third, a kit-proof effort, which is the Air Force equivalent of low-rate initial production. Finally, the full production run. The approach was most aptly summed up by the deputy J-6 as "going slow to go fast."

The cost of the first three planes modified under the prototype effort was $2.5 million each. The cost of the two planes modified under the kit-proof effort was $2 million each. The effect of these two risk reduction efforts was to bring the cost of the production run of 10 planes down to $1.1 million each.

Remember, risk equals money. By breaking down the effort into three phases, reducing the risk as the effort progressed, the cost of the production run was cut in half. The original estimate of six years and $50 million-plus was reduced to three years and just under $25 million. Effectively, both the budget and schedule were cut in half. The users were happy with their new capability, and the Army leveraged the USSOCOM effort to produce its Enroute Mission Command Capability for the XVIII Airborne Corps' Global Response Force.

CONCLUSION

Credibility cannot be built overnight, although it certainly can be lost that fast. A successful foundation of credibility requires building trust—trust built by consistently producing what you said you would produce, in the time you said you would do it and within the budget you were given. Cost, performance, schedule: It's more than a mantra, it's your path to credibility.

For more information, read "The 4 Disciplines of Execution" by Chris McChesney, Sean Covey and Jim Huling, or contact the author at 703-806-0583 or ***joel.d.babbitt.mil@mail.mil****.*

COL. JOEL D. BABBITT is the product lead for Wideband Enterprise Satellite Systems within the Program Executive Office for Enterprise Information Systems at Fort Belvoir, Virginia. He previously served as the product manager for the Warfighter Information Network – Tactical Increment 1 and the product manager for command, control, communications, computing and intelligence for a unit under the U.S. Special Operations Command at Fort Bragg, North Carolina. He holds a master's degree in computer science from the Naval Postgraduate School and a bachelor's degree in psychology from Brigham Young University, and is a graduate of the U.S. Army Command and General Staff College at Fort Lee, Virginia, and Austin, Texas. He is Level III certified in program management and Level II certified in engineering and in information technology. He holds the Project Management Professional certification and is a member of the Army Space Cadre and the Army Acquisition Corps.

BEEN THERE, DONE THAT

Want a HIGH return?

Invest in more business education for PMs, and reap returns in the short term (good products at an appropriate price) and long (repaired credibility for defense acquisition).

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

"I don't care how much it costs, we need it now!"

At the height of the conflicts in Iraq and Afghanistan, getting warfighters the capabilities they needed as rapidly as possible was always the top priority for the defense acquisition community—and who could argue against it? Delivering effective, suitable warfighting equipment as fast as possible was the focus—often at the long-term expense, literally, of the services' and DOD's budgets.

Maintaining the focus on urgent needs was possible because of the availability and amount of overseas contingency operations funding. Speed of delivery was a higher priority than total ownership (life cycle) costs, despite the significant impact that speed had on long-term operation and maintenance accounts. Fast-forward a few years, and the services faced declining base budgets, sequestration and the first of three iterations of the Better Buying Power initiative, emphasizing the importance of making wise financial investments with limits on planned funding.

It was a dual reality: one in which money was no object and one in which money was the overriding concern. You just had to remember in which reality you were operating, or you could find yourself burned. This dilemma of the past decade will continue well into the future for many acquisition program managers (PMs).

The good news is that the training and education of acquisition PMs, and of the Defense Acquisition Workforce in general, has never been better. PMs have gained defense acquisition and procurement acumen based on both education and experience. PMs and program executive officers (PEOs) have defined criteria for education, training and experience, with certification requirements that ensure their pedigree to lead organizations and programs. But just as conditions and priorities change, the demands for acquisition knowledge do, too. There needs to be a continual review of PMs' education requirements to ensure that they have the tools necessary to lead ever more complex DOD programs in challenging fiscal environments. Today's emphasis on affordability will only grow more important with the continuing uncertainty of funding,

requiring that PMs have formal business education.

In my 17-plus years in this profession, the command climate of every program management office I was part of centered on getting solutions to the warfighter as quickly as possible that would meet their needs affordably and be supportable. The competence and leadership of PMs has been exemplary, yet defense acquisition is in a continual state of "reform" as the result of a relatively small number of very high-profile failed acquisition efforts. One acquisition reform that would pay big dividends without adding bureaucracy or oversight would be to require more fundamental business education for PMs—defense acquisition is, after all, fundamentally a business endeavor. Acquisition attracts mission-driven professionals who want to apply business skills to saving the lives of Soldiers, as the Hon. Heidi Shyu noted when she was the assistant secretary of the Army for acquisition, logistics and technology.

FRAMEWORK FOR SUCCESS—OR NOT

Defense acquisition as an institution—commonly referred to as "big A" acquisition—comprises the three decision support templates used to guide programs: one for generating requirements, known as the Joint Capabilities Integration and Development System; a second for managing program milestones, known as the Defense Acquisition Management System (commonly referred to as "little A"); and a third for allocating resources, the Planning, Programming, Budgeting and Execution process. The "big A" fails, despite PMs' best efforts, because of the complexity of the interactions among the requirements, funding and management systems as well as the effects of competing stakeholder priorities.

Within this framework, the specific causes of most program failures are easy to identify: changing requirements, unstable funding, immature technologies, misalignment of requirements and funding, competing political agendas, schedule-driven programs overemphasizing milestone achievement, the rapid pace of change and innovation in technology and the rapidly evolving threat environment against the backdrop of a deliberate acquisition system.

PMs who are more business-savvy could more easily make financially astute recommendations even with the continuing fiscal challenges and constantly changing environments. Requiring that PMs receive more fundamental business education would simply double down on the professionalism of the acquisition workforce, not add a new layer of government.

Currently, Level III certification in program management, as dictated by the Defense Acquisition Workforce Improvement Act, requires 24 business credit hours—without specifics on the types of required courses. The requirement is an acknowledgment of the importance of formal business education for PMs and is a fundamentally critical step in establishing PMs as acquisition professionals, but DOD should go further: Increase the PM selection requirement to an accredited business degree (preferably a business master's degree or MBA with a defense

DRESS FOR SUCCESS

Spc. Saurav Udas, a supply specialist assigned to the 3rd Brigade Combat Team (BCT), 25th Infantry Division (ID), holds new items in the operational camouflage pattern, to be used in the tropical environments of the Pacific region. A program's schedule—how quickly the Army wants to get gear in the hands of Soldiers—requires considering return on investment. (U.S. Army photo by Staff Sgt. Armando R. Limon, 3rd BCT, 25th ID)

RIGOROUS PROCESS, VIGOROUS RESULTS

Soldiers assigned to the 3rd BCT, 25th ID perform endurance and mobility training in March at Watts Field on Schofield Barracks, Hawaii, as part of a weeklong advanced physical training course. In 2012, after negative input from a Soldier online survey on the Improved Physical Fitness Uniform, the Army set out to update it with a new design, new material and more sizes to address Soldiers' concerns. (U.S. Army photo by Staff Sgt. Armando R. Limon, 3rd BCT, 25th ID)

acquisition management concentration and a focus on system engineering and technology management) for all product and program managers at the O-5 and O-6 levels. And don't limit the increased requirement to acquisition category (ACAT) I PMs (those who manage the biggest programs); all PMs need a solid base in business and financial education. Promotion to field-grade officer rank above O-4 (corresponding roughly to the time an officer would be seeking Level III PM certification) already requires a graduate degree; therefore, this recommendation doesn't present the Army with an additional education cost.

BUSINESS CASE IN POINT

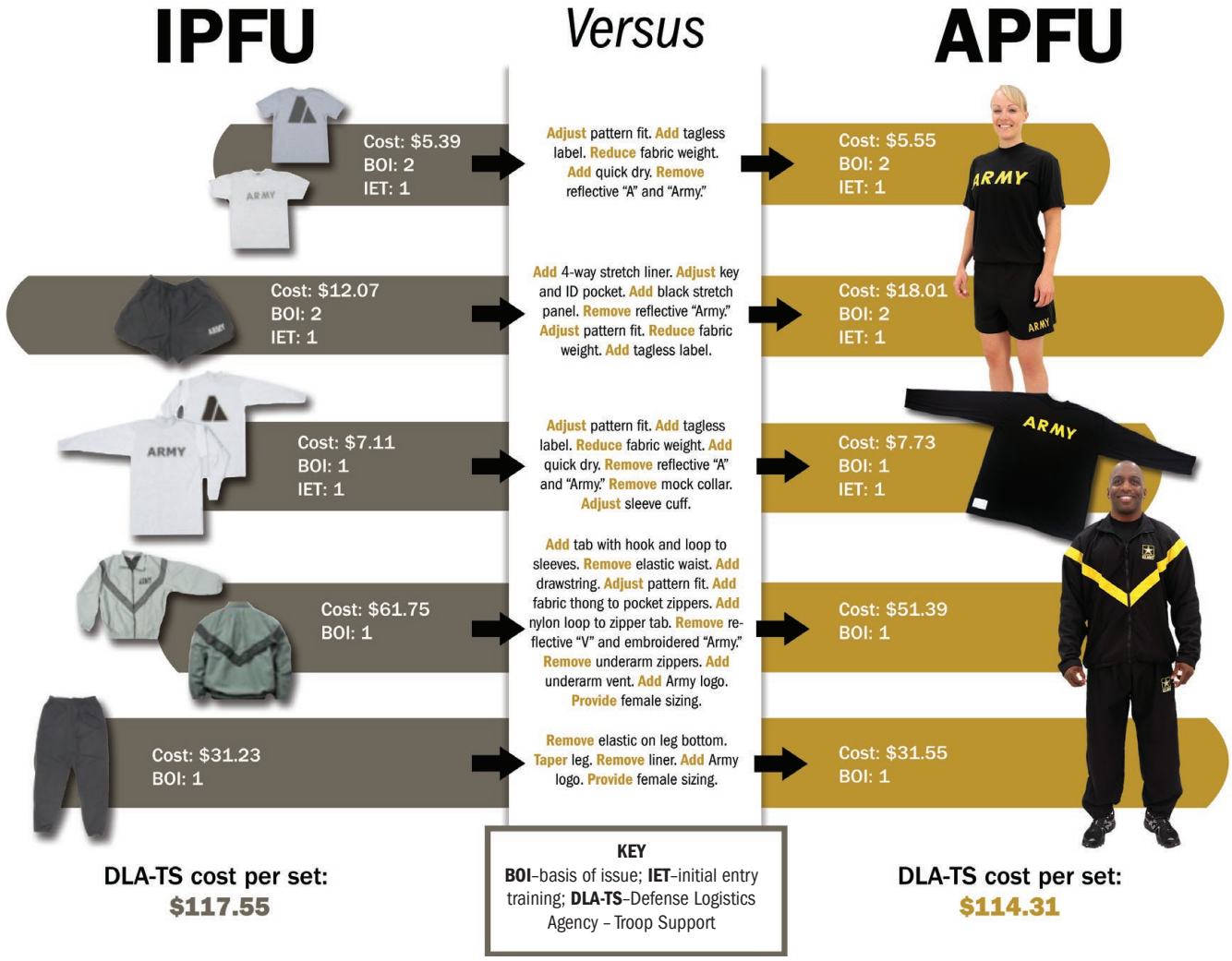
The recent adoption of the Army Physical Fitness Uniform (APFU) offers an excellent example of an effort that required a financially responsible acquisition approach. In early 2012, more than 76,000 Soldiers expressed dissatisfaction with the Improved Physical Fitness Uniform (IPFU) in an online survey, primarily noting stiff, uncomfortable fabrics and a lack of female sizes. As a result, Army leadership directed PEO Soldier to update the IPFU with higher-performing fabrics, new sizes and a new design to address Soldier dissatisfaction and the expanded use of the uniform in combat zones.

After prototype testing with Soldiers, a series of town halls across Army installations hosted by the sergeant major of the Army and another online survey with approximately 190,000 participating Soldiers, Army leadership approved the APFU in April 2013 with more than 30 improvements, from better sizing (including sizes designed for women) to a change to moisture-wicking fabrics. The Army approved a plan to phase in the uniform over four and a half years, allowing Soldiers to wear the new APFU beginning in October 2014 with a mandatory possession date of October 2017. The plan took into account user testing with Soldiers in representative climatic conditions at six Army installations; technical testing for durability, colorfastness, laundering, moisture wicking, female sizing and fit; time to subsequently optimize the design; time to put the uniform on contract with multiple vendors; time to build up production inventories; and time for Soldiers to transition to the APFU.

Repeatedly, senior-level decision reviews at the Pentagon posed the following questions:

- Why can't the Army just give Soldiers commercial (for example, Nike or UnderArmour) workout gear?
- Why can't the transition happen faster (begin sooner and take less than three years)?
- The increase in the price is less than $1. Let's just buy the slightly more expensive one—what's the big deal?

Answering these questions requires understanding return on investment (ROI)—fundamental principles taught in business education curriculums and then subsequently applied in practice, which results in experience. To start with, providing Soldiers commercial products would require the Army to purchase the technical data rights, at a cost of tens of millions of dollars, or pay a per-unit premium in the form of a 10-20 percent markup per item. Both of these options have bad ROI when the Army could upgrade to similar fabrics and design and avoid the commercial product premium.



UNIFORMLY SOUND BUSINESS

Numerous complaints about the Improved Physical Fitness Uniform then in use led the Army to adopt a new Army Physical Fitness Uniform, which used upgraded materials and fit better. Sound business principles and cost analysis led to a decision to phase in the new APFU gradually. (Image courtesy of the author, PEO Soldier and U.S. Army Acquisition Support Center)

The program schedule—how quickly the Army wants to get gear in the hands of Soldiers—also necessitates considering ROI, because project timelines are proportional to required resources. In the APFU case, rapidly replacing all current fitness uniforms would not only mean an upfront bill for the cost of the new uniforms but also would require that the Army account for the costs of on-hand inventories (quantities of the current physical fitness uniforms bought, stored and ready for Soldier issue when needed) on the order of tens of millions of dollars at any given time. The adoption of a phased implementation strategy, whereby the Army would use on-hand inventory and gradually convert new buys to the APFU, allows the Army to build up APFU inventory for gradual integration by the force, draws down the current inventory and avoids a large residual asset bill (quantities of the current fitness uniforms that the Army no longer needs).

Finally, the price per unit is important: Any seemingly small increase in price is magnified to millions of dollars because of the number of Soldiers, basis of issue (in this case, the number of APFUs allotted to each Soldier) and wear-out time. While the cost of the APFU short-sleeved T-shirt was only $5.55, a $1 increase in a T-shirt equates to a multimillion-dollar bill to Army personnel funding accounts at a time of great pressure on end strength. For example, that $1 increase equates to a nearly $8 million yearly increase in future funding requirements for the personnel account. Thus, any change in the fitness uniform had to be as close to cost-neutral as possible, based on unit price.

CONCLUSION

The Army's decision to gradually phase in the APFU for the existing uniform using upgraded materials in a cost-conscious way highlights the use of sound business principles and analysis. The approach chosen for APFU acquisition and implementation was successful in part because the PM and key members of the PM team had the proper business education—something provided by a formal business degree, not just 24 business credit hours.

Furthermore, the number of credit hours is not the important part of PM certification. What's important is the recognition that business education is a fundamental and essential professional requirement for PMs. To ensure consistent application of this standard across the PM career field, the minimum Level III PM certification requirements should change from 24 business credit hours to an accredited business degree.

The Army's adoption of the APFU was not an ACAT I program with an acquisition program baseline controlling the PM's actions from a performance, cost and schedule standpoint. In fact, the APFU program was not a program of record at all—it was just an effort, albeit one with high Soldier interest and oversight from top Army leaders. In this program and hundreds of similar programs, PMs must simply do the right thing without formal approval for Soldiers and the Army—deliver an affordable capability with the required performance within schedule constraints.

Developing and implementing fiscally responsible acquisition approaches builds and cements trust with senior leaders, Congress and the American public: This is a PM's fiduciary responsibility. Having PMs with the necessary business education, background and experience to carry out this responsibility with consistent success would have a high ROI for DOD. It would pay dividends in the form of even more financially astute, business-savvy, cost-conscious PMs with the acumen required to operate in an environment of budget uncertainty and increased emphasis on improved procurement returns with limited resources.

Over time, the credibility of the acquisition profession could soar—and that is the highest possible ROI for DOD.

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, culminating in his assignment as the project manager for Soldier protection and individual equipment in the PEO for Soldier. He retired in September 2015 and is now a lecturer for defense acquisition and program management in the Graduate School of Business and Public Policy 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 is also a recent graduate of the Post-Doctoral Bridge Program of the University of Florida's Hough Graduate School of Business, with a management specialization.

THE BUSINESS OF ACQUISITION

Soldiers from the 2nd Cavalry Regiment (2 CR) field artillery squadron conduct new equipment training on the Counter-Unmanned Aircraft System Mobile Integrated Capability in March at Grafenwoehr Training Area, Germany. Proposals for new equipment run up against budget reductions and spending constraints, requiring the expertise of PMs with sound business management skills. (U.S. Army photo by Sgt. Devon Bistarkey, 2 CR Public Affairs)

FROM THE DIRECTOR,
U.S. ARMY ACQUISITION SUPPORT CENTER

OWNING YOUR BATTLESPACE

The AALPC primes program managers for success as acquisition leaders

Craig A. Spisak
Director, U.S. Army Acquisition Support Center

One of the imperatives for a program manager (PM) to succeed in Army acquisition is that they must own their battlespace.

Think of two concentric circles. The inner circle is what a PM is responsible for: What are the resources, what is the timeline, what are the cost effects of these factors on the program and, very specifically, what are the performance attributes that the PM is trying to get out of this particular system?

The outer circle consists of things that are outside the PM's immediate control but could have an impact on the program: What's going on with respect to funding on Capitol Hill? How does the test community view what's going on? What's happening on the resourcing side that may impact the program in the future? What's happening in the requirements community? What is the contracting community's view of the strategy being employed for this program?

When you can manage your internal circle and understand what's going on around you in the outer circle, you own your battlespace. It was out of that imperative that the Army Acquisition Leader Preparation Course (AALPC) was born.

OPENING THE APERTURE

Several years ago, Lt. Gen. Michael E. Williamson called me into his office. I get a program manager coming in, he said, and I ask what's going on. And when they leave, I have complete comfort that they really own their battlespace. And then I get another one in who briefs me on their schedule. And when I ask them a question, they say, well, that's what the test community told me: It's going to take 12 months. When I ask why, they don't know. They haven't engaged with their community.

EQUIPPED TO LEAD

Lt. Gen. Michael E. Williamson, then principal military deputy to the assistant secretary of the Army for acquisition, logistics and technology and the Army director for acquisition career management, speaks to participants in the November 2016 AALPC, one of a number of initiatives designed to equip acquisition leaders with the skills to effectively manage their programs. (Photos by Michelle Strother, U.S. Army Acquisition Support Center)

Williamson saw a great disparity among our program managers: For some, their apertures weren't wide enough to truly prepare them to proactively influence all of the stakeholders and have better control over their programs.

To address that disparity, he said we needed to develop some kind of learning event. The result: the AALPC. The intensive five-day course is run by the Army Director for Acquisition Career Management Office. Conducted twice a year since its April 2015 pilot, it's designed to equip centrally selected PMs, contracting commanders and product directors with the knowledge and skills necessary to address challenges they're likely to encounter in their new roles.

The AALPC is not a briefing. Instead, the attendees operate in small groups. They have remarkably intimate exchanges and dialogues with practitioners and senior leaders from all sorts of environments on topics including leadership, effective communication, talent and organizational management, risk identification and management, and understanding a program budget. There's a fair amount of discussion about the moral and ethical responsibilities related to leading people and programs. There are also career field breakout sessions for PMs and contracting officers.

At our most recent AALPC, in April, speakers included the Hon. Chuck Hagel, the former secretary of defense and U.S. senator; Gen. Daniel B. Allyn, the vice chief of staff of the Army; and James A. MacStravic, performing the duties of the undersecretary of defense for acquisition, technology and logistics. On one day alone, seven general officers participated as speakers or facilitators.

Our thought leaders come to AALPC not only from inside DOD, but also from the defense industry, academia and non-defense-related industries. At the April course, our facilitators

included a staff member of the House Armed Services Committee and representatives from Amazon Web Services Inc. and Boeing Co. We've recognized that if you can look at a problem through a different lens, you may be able to apply what other people have done in a different and unique way in your more traditional environment. It allows you to broaden your mind.

BUILDING A NETWORK

One of the things we do is what we call speed networking, whereby individual senior personnel rotate to multiple tables of people over the course of several hours. We also ensure that the participants in those courses are not always sitting with the same people. They're getting exposed to and exchanging ideas not only with different thought leaders, but also with different members of their class. This allows participants to develop comfort with the people they engage with. It's very easy when you've had a personal and intimate conversation with somebody to pick up the phone in the future, call them and say, "Hey, I'm running my program and I'm experiencing this challenge. What do you think? Have you experienced it?"

Williamson used the term "building your Rolodex." Of course, no one under 35 has any idea what a Rolodex is. But the idea is to build a trust network and a knowledge network, a base of people who already have experienced a similar problem—that colonel or that GS-15 civilian who talked about this same kind of thing—and be able to reach out, pull on that resource and say, "You talked about this. Could you walk me through it so that I don't have to travel the learning curve again?"

The big thing we often talk about in our community is that even though there's a lot of uniqueness to what we do, there's a ton of similarity in the types of problems we face while running our programs. Walking that PM path doesn't have to mean reinventing the wheel every time there's a problem.

BUILDING THE BASE

AALPC participants Lt. Col. Frankie Cruz, left, and Lt. Col. Cassandra Forrester, center, discuss talent and organizational management with facilitator Col. Maria Schneider during a speed networking session at the April 2017 AALPC. Such sessions are designed to strengthen relationships among PMs and build a network they can tap into when challenges arise.

CONCLUSION

We ask a lot from our AALPC facilitators and speakers. We're asking them to engage in potentially an all-day activity. Even for the lunch and dinner speaker, it's a commitment of several hours, and often they stick around afterward to continue the dialogue and engagement. It's draining to participate. And we're grateful for their contributions.

The feedback we're getting from the participants, facilitators and speakers has been incredibly positive. Almost to a person, participants have said this is probably one of the best events they've attended to prepare them to take on the roles and responsibilities they are about to enter.

But the more difficult question is whether the AALPC is having a successful impact on the management of programs. That's very difficult to measure, because there's really no way to tell today that it's having a net positive effect on acquisition program outcomes. But the overwhelmingly positive feedback suggests that we're moving in the right direction.

Here's the overarching concept for the AALPC: You can never over-prepare a leader to lead.

CAREER NAVIGATOR

The INDIVIDUAL DEVELOPMENT *Plan*

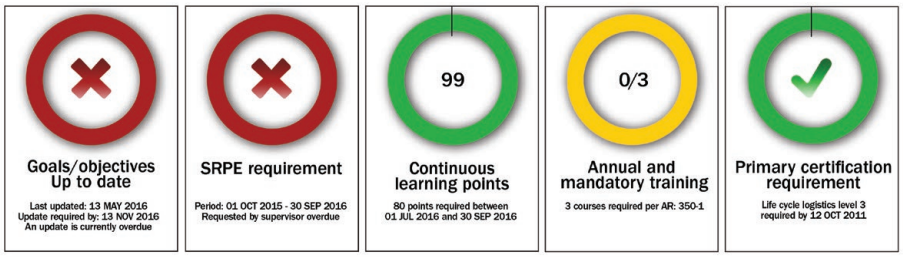
This career basic helps acquisition workforce members keep track of what they need to do and when.

Jobs in defense acquisition are unlike most others because of the legally mandated training, education and other requirements that employees must fulfill. The central tool for planning and tracking those requirements and compliance with them is the Individual Development Plan (IDP).

Fortunately, there's an app for that, and it's accessible through the Career Acquisition Personnel and Position Management Information System (CAPPMIS) portal at **https://rda.altess.army.mil/camp/**. (A Common Access Card is needed to log in.)

Acquisition workforce members are required to create and maintain a five-year IDP. While that sounds a little onerous, the good news is that it's not difficult. In fact, based on the individual's initial assignment in the acquisition workforce, as entered into the Defense Civilian Personnel Data System (DCPDS) by their human resources point of contact, the IDP pretty much creates itself.

DCPDS data are available to CAPPMIS within three or four weeks of hire. When the employee logs in, CAPPMIS uses the particulars of the individual's position and their credentials from DCPDS to create a basic IDP, including all of the courses required for certification under the Defense Acquisition Workforce Improvement Act (DAWIA). It's then up to the individual to customize and add other courses and objectives. For example, the course starting dates are recommended from information initially entered in the employee's file, but the individual can change these dates to fit their schedule.



GREEN MEANS GO

The most recent update to the IDP site on CAPPMIS incorporates a dashboard that uses red, yellow and green indicators to represent compliance with workforce standards. As new standards are identified, the dashboard adjusts to reflect progress toward those requirements. (Image by U.S. Army Acquisition Support Center)

The IDP is designed in part to help maintain meaningful communication between the employee and supervisor about the employee's career. Its main purpose, however, is to help the employee understand, track and accomplish what's expected of them to keep current in their certifications. The IDP remains a living document throughout the acquisition professional's career.

SUPERVISOR INPUT IS KEY

Stephanie Watson, acquisition career manager at the U.S. Army Acquisition Support Center, described how the IDP supports the supervisor-employee connection.

"Once an IDP is created, the individual must submit requests on almost everything through their supervisor," Watson said. "For example, all online and resident courses—with the exception of continuous learning modules—as well as objectives and education must be added to the IDP, then submitted to the supervisor for review and approval. This facilitates the discussion between the employee and supervisor on where the employee wants to go [with their career] and where they see themselves in three to five years."

> *Acquisition workforce members are required to create and maintain a five-year IDP. While that sounds a little onerous, the good news is that it's not difficult.*

Watson noted that the system has additional capabilities. For example, the U.S. Army Director for Acquisition Career Management (DACM) Office monitors IDPs, which helps the DACM Office carry out its responsibility for ensuring acquisition career development, talent management initiatives and certification of the Army Acquisition Workforce.

"It helps us get quotas for seats in DAU [Defense Acquisition University] courses," she said. "When they [employees] sign up for training in their IDP, we find out how many other members need the same training for their certification. We petition the DAU for Army quotas. If we have more people needing the training, we may get more seats, which means we can get more people certified quicker."

IDP UPGRADE ROLLED OUT

A January update to the IDP system (version 3.9) promises workforce members and their supervisors an easier way to keep track of requirements and report core training and certification status. This includes email notifications to both parties when the items related to the employee's DAWIA compliance are coming due or are past due.

A new dashboard feature uses a "stoplight" color scheme to signal where the employee stands vis-a-vis continuous learning points, primary certification requirements, annual mandatory training, the status of goals and objectives and the Senior Rater Potential Evaluation requirement. As the employee's acquisition career progresses and they meet requirements, the dashboard updates accordingly.

CONCLUSION

The IDP provides acquisition professionals a means to keep their career on target, but it is by no means an "autopilot" tool. Ultimately, it's up to the individual to remain certified and qualified in their current position. Consistently maintaining the IDP plays a necessary and useful role in fulfilling the obligations of acquisition professionals.

For more information, go to ***http://asc.army.mil/web/dacm-office/.***

—MR. ROBERT E. COULTAS

4th Annual

2017 Major General Harold J. "Harry" Greene Awards for Acquisition Writing

"We have to tell the good news stories. If you focus on the bad news, you miss the point that the vast majority of what happens here is tremendously positive and tremendously important to the Soldiers, Sailors, Airmen, Marines, Coast Guardsmen and Homeland Defenders."

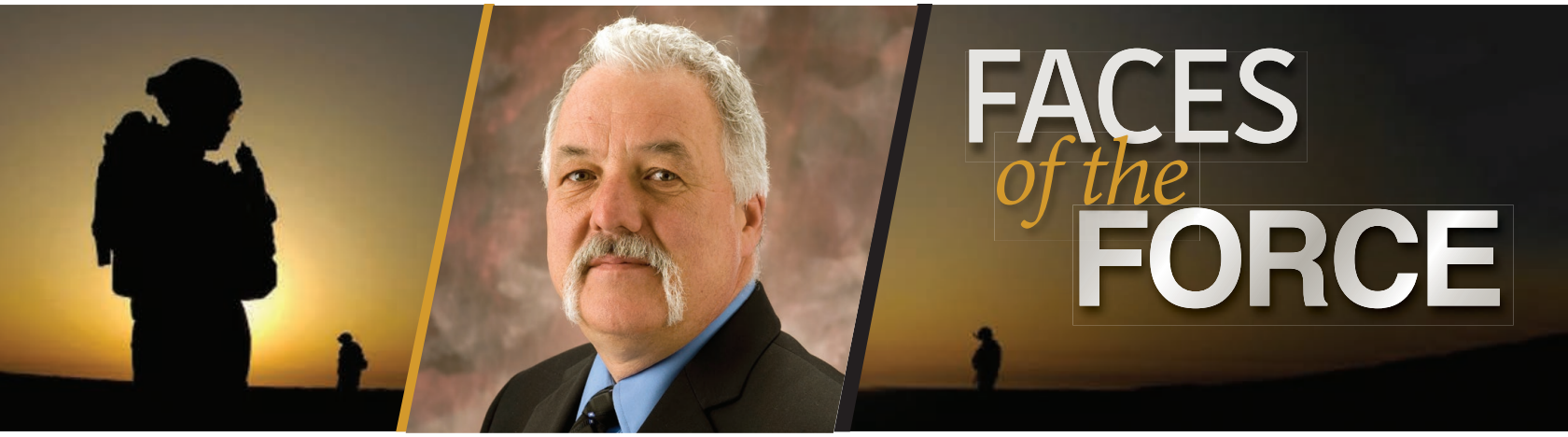
– Major General Harold J. Greene

The competition is open to everyone . . . identify, discuss, and influence the outcome of significant issues that affect U.S. Army acquisition through critical writing . . . tell your story to internal and external stakeholders.

Share your ideas, expertise and experiences by submitting articles, essays and opinion pieces in the following categories:

- **Acquisition Reform**
- **Future Operations**
- **Innovation**
- **Lessons Learned**

For complete competition details, go to http://www.army.mil/asaalt



MR. GARY THIBAULT

COMMAND/ORGANIZATION:
Product Manager for Force Sustainment Systems, Program Executive Office for Combat Support and Combat Service Support

TITLE:
Supervisory mechanical engineer; cargo aerial delivery team leader

YEARS OF SERVICE IN WORKFORCE: 39

DAWIA CERTIFICATIONS:
Level III in engineering

EDUCATION:
B.S. in mechanical engineering and bachelor of engineering technology in mechanical engineering, Northeastern University

AWARDS:
Top Ten U.S. Army Materiel Command Personnel of the Year; Commander's Award for Civilian Service; Association of the U.S. Army Citation for Exceptional Service; U.S. Army Natick Soldier Research, Development and Engineering Center Technical Director's Silver Pin for Development and Engineering; American Institute of Aeronautics and Astronautics Theodor W. Knacke Aerodynamic Decelerator Systems Award

Part of Gary Thibault's career is looking up

Gary Thibault has spent a lot of time waiting for things to fall out of the sky. But he's no Chicken Little: His field is aerial delivery systems development, and for nearly 40 years he has played an important role in making sure that Soldiers at forward operating bases and on humanitarian missions get the supplies and equipment they need.

Thibault is a supervisory mechanical engineer and cargo aerial delivery (CAD) team leader within the Product Manager for Force Sustainment Systems, part of the Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS). Officially part of the U.S. Army Natick Soldier Research, Development and Engineering Center (NSRDEC) assigned to PEO CS&CSS, he works with the assistant product manager for CAD. The team Thibault leads is responsible for advancing CAD capabilities for the Army and DOD—systems for deploying, stabilizing and decelerating a payload so that it lands in fully mission-capable condition at the correct location.

"Our CAD team's job is to manage the development of the most capable and advanced cargo aerial delivery systems and equipment in the world, and to manage the fielding of that equipment to the most capable fighting force in the world," said Thibault. "We can only accomplish that mission with close and constant collaboration with our many acquisition partners." Those include the group's combat developer, the U.S. Army Combined Arms

Support Command; joint service users; the U.S. Army Test and Evaluation Command; Air Mobility Command, which provides expert flight test support; the Defense Logistics Agency; and the U.S. Army TACOM Life Cycle Management Command's Integrated Logistics Support Center, which provide logistics and sustainment support.

Thibault has spent his entire career as an engineer in the airdrop field at NSRDEC. He has had a hand in replacing much of the portfolio of Korean War- and Vietnam War-era airdrop equipment with more advanced equipment—improvements necessitated by U.S. military operations in Iraq and Afghanistan. At the peak of Operation Enduring Freedom, 85 million pounds of cargo were dropped in Afghanistan in one year. The increase in aerial deliveries provided more opportunities for Thibault and the CAD team to collect feedback from Soldiers in theater. That feedback, in turn, helped shape improvements to two key systems: the Low-Cost Aerial Delivery System (LCADS) and the Joint Precision Airdrop System (JPADS). LCADS is a one-time-use ballistic system that delivers supplies from low altitudes, whereas JPADS releases at high altitudes and uses airborne guidance units for precision drops.

Legacy Army cargo supply parachutes, made from nylon, have to be packed by hand by a trained rigger and recovered after each use. It was difficult to keep up with demand created by engagements in Iraq and Afghanistan, and NSRDEC developed a new system that uses a prepacked polypropylene chute. Those changes reduced the cost of the system by 50 percent and eliminated the need for a rigger to pack each parachute. "The biggest challenge we face now is remaining relevant and agile in the current environment of financial uncertainty and changing priorities," Thibault said. "The best way to address that is to anticipate change and stay in touch with our ultimate customer, the Soldier and the combatant commanders. If we get too far removed from that, we won't do well."

Thibault was hired in 1978 as a co-op engineering intern student at what was then the U.S. Army Natick Laboratories, and started in the Aero-Mechanical Engineering Directorate. Maurice P. Gionfriddo, an aerospace engineer from the Massachusetts Institute of Technology and Airdrop Systems Integration Branch chief, hired Thibault and remained his technical and acquisition mentor for a good portion of his early career. "He made sure I was given demanding and challenging assignments in a team-centric environment, which allowed me to work with and learn from many other seasoned engineers on a wide range of equipment and systems." Those early years also exposed Thibault to the Army research, development, testing and engineering process and the importance of forming a cohesive integrated product team with all of the acquisition stakeholders.

He has been a member of the Army Acquisition Workforce (AAW) since its inception. "Shortly after the Defense Acquisition Workforce Improvement Act became public law in 1990, and about 10 years into my career, my supervisor encouraged me to join the AAW and become certified in what was then systems planning, research, development and engineering," said Thibault. "It was a great opportunity to participate in the newly structured AAW training and certification program."

Structured training is essential to understand the framework that guides defense acquisition, he added, "but it's the interactions with users that have given me a better understanding of their airdrop needs, a broader knowledge of the airdrop equipment and a much deeper appreciation of the highly dynamic environment we need to design the equipment for."

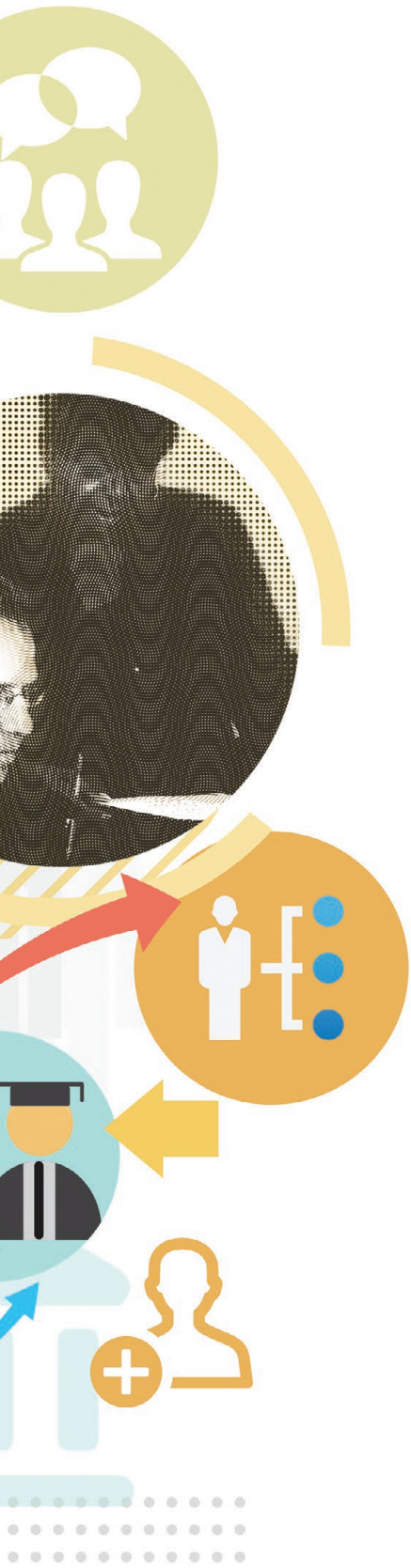
What sticks out most as he looks back over his career are "the experiences where I observed, firsthand, warfighters relying on airdrop equipment. There's nothing like the feeling of standing on a desolate drop zone with warfighters or being on the delivering aircraft with the crew, waiting for that new or improved airdrop system or piece of equipment to safely come out of that aircraft." Thibault has been on the ground for testing and training drops in locations around the U.S., including Yuma Proving Ground, Arizona; Fort Bragg, North Carolina; and Edwards Air Force Base, California. He also had the chance to take part in a humanitarian aid drop in the early 1990s, in what was then Bosnia-Herzegovina. Drop teams were having problems with the parachute systems used for large deliveries of food and clothing, and Thibault was part of a joint Army and Air Force team that observed the drops to try to identify and resolve the problem.

That hands-on experience is a vital part of career development, he said. "Get as much hands-on experience and functional knowledge as you can early on in your career, with the types of equipment and acquisition processes that interest you the most," he said. "Immerse yourself wherever and whenever possible with warfighters who rely on and use the equipment or processes that spark your interest." Or, as Thibault remembers former PEO CS&CSS Kevin M. Fahey saying, "Work like your life depends on it, because someone else's does."

—MS. SUSAN L. FOLLETT

A MULTIPURPOSE TOOL

The SRPE allows Army acquisition organizations to think critically about the workforce and each member's competitive potential: Who are the future civilian leaders, and how can they and their supervisors best develop their potential when resources are limited? How can the SRPE be applied to generate ongoing, honest conversations with employees about their strengths, weaknesses and goals and how to meet those goals with training, education and job experiences? (Image by U.S. Army Acquisition Support Center/exdez/iStock)



The Shape of SUCCESS

PEO CS&CSS makes a two-pronged effort to maximize the effectiveness of the SRPE and get the most from its workforce.

by Mr. Scott J. Davis

Last quarter, Craig A. Spisak, director of the U.S. Army Acquisition Support Center, wrote about the importance of Senior Rater Potential Evaluations (SRPEs) in helping to identify and shape our community's future leaders. I agree that the SRPE is a very important tool. Our current environment is uncertain and resource-constrained, and it's often hard to spend the extra time to think critically about our workforce. Yet I'm convinced that we must make the time to shape our most important resource. We owe that to both the Army and our team members. A mechanism like the SRPE that helps us give employees, leaders and future selection boards an honest, transparent and consistent idea of civilian employee potential is powerful.

While our organization's No. 1 priority is effective program management, we cannot do that without effectively developing our people. Shaping our acquisition professionals—from early mentoring through senior-level assignments—is a serious responsibility we all share. Everyone has a stake in how we recruit, retain, motivate and develop talent across the Army Acquisition Workforce, and every employee, supervisor and leader plays an essential role in the process.

Of course, the SRPE isn't magic. It is just a tool. What matters is how we use it: how we have meaningful conversations with our civilian employees and how we communicate about our employees. A good tool used poorly—be it an integrated master schedule, a spend plan or a SRPE—usually fails to do the job well. Just as there are recognized best ways to use the tools of acquisition, so, too, must there be best ways to develop our people.

A CONTINUING CONVERSATION

At the Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS), I've challenged our human capital team and all of our senior leaders to take SRPEs very seriously in two ways.

The first is to integrate the SRPE into what should already be an ongoing conversation about every employee's development. We can't assess someone's potential unless we understand who they are, what they've done and what they'd like to do. We cannot disconnect discussions about an employee's potential from their career goals or the training, experiences and education they choose to pursue.

This ongoing conversation or cycle begins with the Individual Development Plan (IDP), whereby an employee and a supervisor talk about the employee's goals for their career, education, training and so on, then lay out a plan. This is where the employee describes where they see themselves and where they want to go. Based on the IDP, the employee and supervisor should make choices about future opportunities. (See "Career Navigator," Page 101.)

In the SRPE, the supervisor and senior rater assess the employee's potential—not just as an individual, but across relevant peer groups. This answers questions about where an employee is and where they can go, based on their potential:

- Are they skilled in the field they'd like to pursue?
- Have they experienced the right program type, phase and category to prepare them for the next level?
- Are they ready for the next step? If not, what training or experiences would get them there?

An honest conversation about the SRPE helps the employee understand strengths and weaknesses, their competitive potential and what they could do to reach their career goals.

After reviewing the SRPE and pursuing training or experiences, the employee and supervisor can return to the IDP and change or continue plans to meet the employee's career goals, perhaps improving the employee's demonstrated potential. Because this should be a continuous cycle of communication, nothing on the SRPE should shock or surprise the employee. If it does, communication was clearly lacking, and that needs to be addressed.

MAXIMIZING THE SRPE'S VALUE

The second way we've leveraged SRPEs is to think diligently about how we maximize their value for our team members' assessment and their competitive potential. SRPEs are most effective to the Army and the employee when they provide a consistent, accurate assessment of a civilian employee's potential for future progress against a substantial set of peers in both grade and function.

Based on feedback from previous centralized selection boards, we understood that inconsistent phrasing, small cohorts, imprecise distinctions or multiple No. 1 enumerations (ratings) in the same organization caused confusion and did not enhance an employee's competitive potential. Making distinctions meaningful, consistent and accurate is important not only for the board, but also for individual employees.

In PEO CS&CSS, we established the program executive officer as the senior rater for all NH-IV employees, giving us a large pool of comparable associates, both overall and by functional group. It also means that every associate will have a SRPE from the general officer or Senior Executive Service level, which is required for centralized selection list boards and provides a consistent evaluation and enumeration for all NH-IV personnel in our organization.

At the beginning of each SRPE cycle, supervisors think critically about each associate's experience, training and demonstrated potential before participating in program manager—O-5 and O-6—meetings to negotiate and agree on an organizational order of merit list (OML). Teams develop OMLs within each organization and within each functional area. Then, at the PEO level, senior leaders negotiate a PEO-wide OML to rank our employees overall and by functional area, paying particular attention to ratings of "exceptional potential" in managing the senior rater's overall profile. This process gives us a clear and fair assessment of potential across the more than 150 associates in our NH-IV workforce, based on discussions and input from all of our senior leaders. The process also collects draft narrative comments and recommendations for each associate's training or experiences.

To make finalizing the senior rater's comments as efficient as possible, our staff created a Microsoft Excel-based tool with unique macros that take in the OML and suggested comments. The tool aligns recommended senior rater comments, enumerations and potential training or assignment opportunities based on career fields and experiences. It is tremendously helpful, making the process of completing senior rater comments easier and far more consistent and fair.

HOW A PEO CAN KEEP COMMUNICATION REAL

There's one additional point I'd like to emphasize about SRPEs and any changes we make in how we recruit, retain, motivate and develop our people: Real communication matters. Shortly after coming aboard at PEO CS&CSS, I conducted a climate survey and found myself both surprised and troubled by some responses. When asked whether their

BUILDING POTENTIAL

The author updates the PEO CS&CSS workforce on SRPEs, their implementation and benefits during a town hall meeting in March at U.S. Army Garrison – Detroit Arsenal in Warren, Michigan. As the program executive officer, Davis initiated a communication campaign to ensure a clear understanding of the SRPE as a vital tool that helps provide civilian employees, leaders and future selection boards with an accurate, clear and consistent picture of employee potential. (Photo by Rae Higgins, PEO CS&CSS Strategic Communications)

organization's leadership would treat them fairly, too few of our team members responded positively, and even fewer thought their leadership would represent their best interests or support their career advancement.

Ever since, we've made fairness, consistency and transparency major themes of every change we've made in the area of human capital, including SRPEs. I'm pleased that two years later, our climate results showed approximately an 8 percent improvement across our O-6-led project management offices.

In the case of the SRPEs, many of our associates and their supervisors had to learn what a SRPE was and how it fit into their development activities, and our approach to consolidated SRPE management took some getting used to. We initiated a deliberate communication campaign, beginning with our supervisors, to ensure a clear understanding of not only what we were doing but why. We first briefed all leaders at the O-6 level, followed by a supervisory all-hands meeting, a discussion on SRPEs during organizational town halls and direct messages to the workforce from me.

I also wanted to position our supervisors for success, so our human capital and communications teams devised a specific guide to shape each SRPE review session. Not every supervisor needed the assistance, but developing our supervisors is no less important than developing the people they supervise. Giving supervisors standard questions to ask improves individual IDP and SRPE reviews, and helps embed consistency throughout our development cycle.

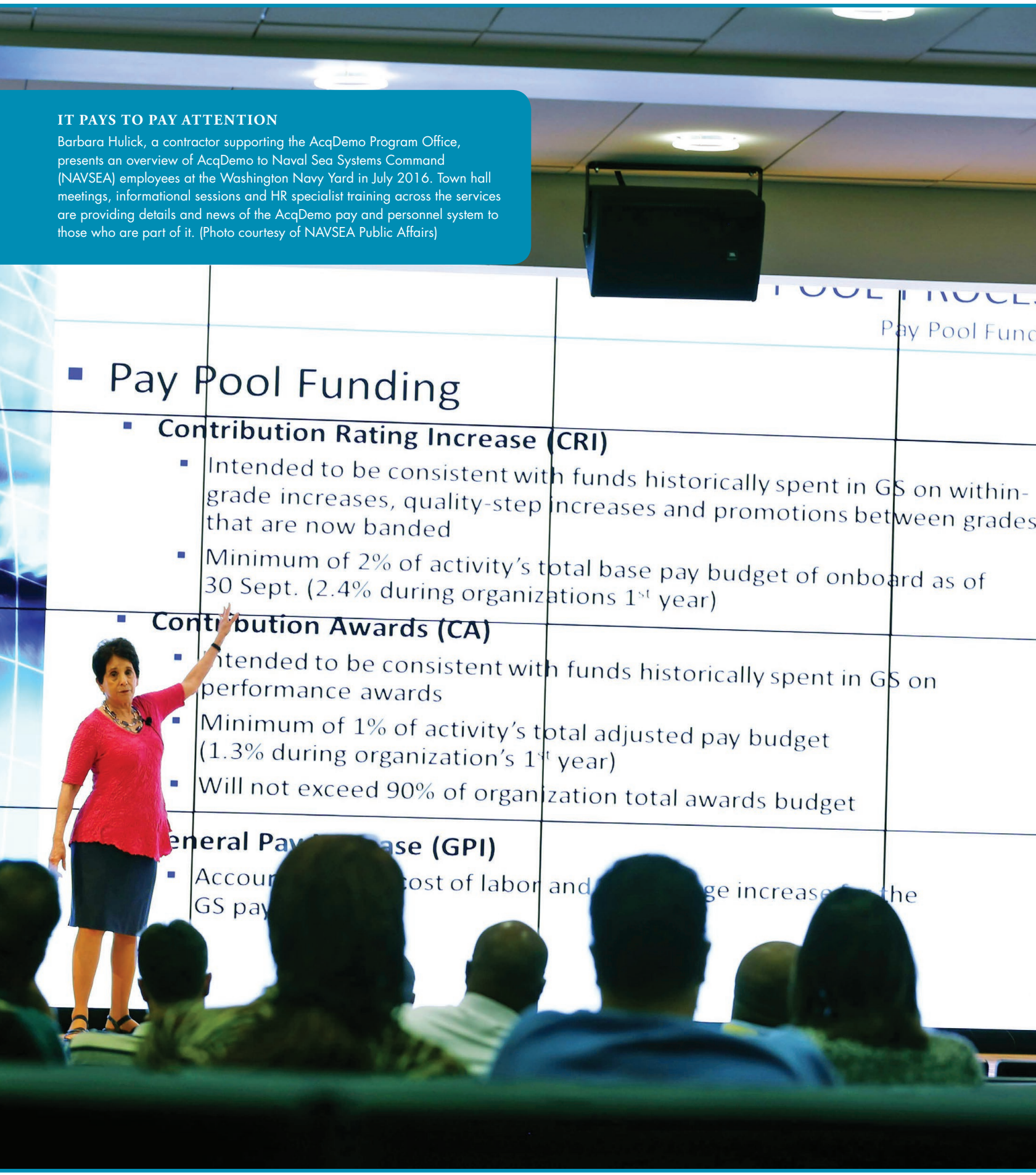
CONCLUSION

We're only in our second year with this process, but so far, anecdotal feedback from centrally selected boards is positive. Just as importantly, our workforce appears to be understanding the process well, including their ability to better understand their own potential. This is important, especially as we begin the process this year of formal SRPEs for our larger population of associates at the NH-III level. We have to make sure to use the tools in a way that continues to enhance the way our team members, supervisors and those beyond our organization understand potential and possibility.

Fundamentally, understanding is about communicating, and when it comes to developing our people, that conversation should never end. Talking about goals, potential and opportunities must occur not just at SRPE time, but rather as part of an ongoing, everyday activity. Our people and our Army will be stronger as a result.

For more information, contact Liesel Folden, PEO CS&CSS' workforce development lead for human capital and assistant PEO for strategic management, at ***liesel.a.folden.civ@mail.mil****. To read Spisak's column on the importance of SRPEs, "Tough Choices, Powerful Tool," go to the April - June issue of Army AL&T at* ***http://usaasc.armyalt.com/#folio=132****.*

MR. SCOTT J. DAVIS is the program executive officer for combat support and combat service support. He holds an M.S. in industrial engineering from Wayne State University and a B.S. in mechanical engineering from Michigan Technological University. He served in the U.S. Army Reserve for 30 years, retiring at the rank of colonel in May 2015. He was selected for the Senior Executive Service in 2005. A member of the Army Acquisition Corps, he holds Level III certifications in program management and engineering.



IT PAYS TO PAY ATTENTION

Barbara Hulick, a contractor supporting the AcqDemo Program Office, presents an overview of AcqDemo to Naval Sea Systems Command (NAVSEA) employees at the Washington Navy Yard in July 2016. Town hall meetings, informational sessions and HR specialist training across the services are providing details and news of the AcqDemo pay and personnel system to those who are part of it. (Photo courtesy of NAVSEA Public Affairs)

CONTRIBUTION!

AcqDemo and upcoming improvements significantly empower acquisition organizations and their teams to focus on contributing to successful execution of the acquisition mission.

by Mr. Jerold A. Lee

The most significant changes to the Department of Defense Civilian Acquisition Workforce Personnel Demonstration Project (AcqDemo) since its inception will be coming in 2018. "These additions and improvements in AcqDemo are the result of a deliberative (over two years) process undertaken by the AcqDemo office in collaboration with participating organizations in all of the services," said René Thomas-Rizzo, director of Human Capital Initiatives in the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSD(AT&L)). For those who are participating in AcqDemo, the new provisions will be welcome news. For organizations considering joining AcqDemo, the new provisions may just close the deal.

"These changes position AcqDemo for the future and for growth," Thomas-Rizzo said.

The proposed changes, which are being finalized within DOD, are wide-ranging. They affect everything from reducing the number of "contribution factors" in the Contribution-Based Compensation and Appraisal System (CCAS) from six to three, to new direct-hire authorities, which include an internship program.

ACQDEMO 101

Created by the National Defense Authorization Act (NDAA) for the 1996 fiscal year, designed in 1998 and implemented with the publication of the Federal Register notice on Jan. 8, 1999, AcqDemo has been updated several times over the years. But those amendments were minor compared with those anticipated for FY18.

AcqDemo is an acquisition-based alternative human resource (HR) management pay and personnel system that provides managers and organizations with increased flexibility in

FIGURE 1

SALARY TABLE 2017-GS (BASE)

Incorporating the 1% General Schedule increase effective January 2017

Grade	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Within grade increase
1	18,526	19,146	19,762	20,375	20,991	21,351	21,960	22,575	22,599	23,171	VARIES
2	20,829	21,325	22,015	22,599	22,853	23,525	24,197	24,869	25,541	26,213	VARIES
3	22,727	23,485	24,243	25,001	25,759	26,517	27,275	28,033	28,791	29,549	758
4	25,514	26,364	27,214	28,064	28,914	29,764	30,614	31,464	32,314	33,164	850
5	28,545	29,497	30,449	31,401	32,353	33,305	34,257	35,209	36,161	37,113	952
6	31,819	32,880	33,941	35,002	36,063	37,124	38,185	39,249	40,307	41,368	1,061
7	35,359	36,538	37,717	38,896	40,075	41,254	42,433	43,612	44,791	45,970	1,179
8	39,159	40,464	41,769	43,074	44,379	45,684	46,989	48,294	49,599	50,904	1,305
9	43,251	44,693	46,135	47,577	49,019	50,461	51,903	53,345	54,787	56,229	1,442
10	47,630	49,218	50,806	52,394	53,982	55,570	57,158	58,746	60,334	61,922	1,588
11	52,329	54,073	55,817	57,561	59,305	61,049	62,793	64,537	66,281	68,025	1,744
12	62,722	64,813	66,904	68,995	71,086	73,177	75,268	77,359	79,450	81,541	2,091
13	74,584	77,070	79,556	82,042	84,528	87,014	89,500	91,986	94,472	96,958	2,486
14	88,136	91,074	94,012	96,950	99,888	102,826	105,764	108,702	111,640	114,578	2,938
15	103,672	107,128	110,584	114,040	117,496	120,952	124,408	127,864	131,320	134,776	3,456

2017 AcqDemo Base Salary by career paths (NH, NJ and NK) and broadband levels (01, 02, 03 and 04)

BUSINESS MANAGEMENT AND TECHNICAL MANAGEMENT PROFESSIONAL

NH-01	NH-02	NH-03	NH-04
18,526 - 33,164 GS-01 to GS-04	28,545 - 68,025 GS-05 to GS-11	62,722 - 96,958 GS-12 to GS-13	88,136 - 134,776 GS-14 to GS-15

TECHNICAL MANAGEMENT SUPPORT

NJ-01	NJ-02	NJ-03	NJ-04
18,526 - 33,164 GS-01 to GS-04	28,545 - 50,904 GS-05 to GS-8	43,251 - 68,025 GS-09 to GS-11	62,722 - 96,958 GS-12 to GS-13

ADMINISTRATIVE SUPPORT

NK-01	NK-02	NK-03
18,526 - 33,164 GS-01 to GS-04	28,545 - 45,970 GS-05 to GS-7	39,159 - 61,922 GS-08 to GS-10

MORE ROOM TO ADVANCE

A comparison of the 2017 GS and AcqDemo pay tables illustrates the greater flexibility afforded by the AcqDemo broadbands, which increase the maximum salary for a given position. The General Schedule, by comparison, creates rigidity in career progression. (Graphics by U.S. Army Acquisition Support Center and Jerold A. Lee, Army AcqDemo Program)

recruitment, staffing, classification, performance management, compensation and employee development. The purpose of the project is to enhance the quality, professionalism and management of the DOD acquisition workforce through improvements in the efficiency, effectiveness and agility of the human resource management system. AcqDemo not only provides a system that retains, recognizes and rewards employees for their contributions, but also supports their personal and professional growth as acquisition specialists and professionals.

In addition, the demonstration project provides managers, at the lowest practical level, the authority, control and flexibility they need to achieve effective workforce management, quality acquisition processes and superior products.

Part of retention and motivation is, of course, compensation, and AcqDemo ties compensation of the workforce directly to individuals' contributions to their organization's mission. This is in stark contrast to the General Schedule (GS) system, which compensates employees more on the basis of longevity and performance. For those employees in defense acquisition organizations participating in AcqDemo, the system is more beneficial than the General Schedule in large part because of the flexibility to compensate employees based on the value of their contributions to the mission.

"The General Schedule is very rigid in terms of [career] progression," said Sandra Brock, deputy director of the Army AcqDemo Program, which manages the Army's implementation and sustainment of AcqDemo. "Salary increases in the General Schedule are given for performance (quality step increases) and longevity. By virtue of longevity, every year—or two years or three years, depending on your step in the General Schedule—you get a step increase as long as you're doing well," Brock said. And when a GS employee is at the top step of the grade, there is no available step increase. That is not the case with AcqDemo, because of its salary "broadbands," each of which is a grouping of grades. The AcqDemo broadbands increase the maximum salary, as shown in a comparison of the 2017 GS and the AcqDemo pay tables. (See Figure 1.)

The General Schedule has 15 grades, GS-1 to GS-15, with 10 salary "steps" in each. Progression from one GS grade to the next, with each grade progression requiring a "promotion," can depend on a lot of variables. For example, a job may be classified as a GS-6 slot, based on its position description, and the organization can't just change the job to GS-7. Contrast that to AcqDemo, which uses position requirement documents instead of position descriptions. Instead of hundreds of different position labels, AcqDemo has three career paths; instead of 15 pay grades, it has three or four broadband levels in each career path.

The greatest flexibility of AcqDemo is in the broader pay bands. If that same GS-6 were in the NK II broadband, for example, the manager could increase compensation based on an employee's contribution results through the CCAS pay pool panel process.

The flexibility of AcqDemo is also in the ability to shape the workforce to meet "required skills and knowledge," as the original Federal Register notice in 1999 noted. "The current personnel system [GS] is unable to adapt the workforce rapidly to changing needs. This demonstration project provides more flexibility to shape workforce capability and size as needed," Brock said.

The system provides for three types of appointments: permanent; temporary limited, not to exceed two years; and modified term, up to five years with the possibility for a one-year extension for a total of six years.

A CONTRIBUTION-BASED SYSTEM

Contribution-based compensation starts with the premise that pay should be based on an employee's contributions to the organization's mission. So the measurement isn't only whether the employee accomplished specific tasks. Rather, it's about what the individual's efforts contributed to the mission.

"For the AcqDemo community," Brock said, "it's how well did you contribute to the mission of the organization? Then, based on that and the value of the position, are you appropriately compensated?"

For participating AcqDemo organizations, perhaps the most significant upcoming change is streamlining the contribution factors from six to three. (See Figure 2.) The contribution factors are the criteria that employees and supervisors use to enumerate and evaluate annual contributions.

In a significant change in authority, the FY17 NDAA moved AcqDemo from under the auspices of the U.S. Office of Personnel Management (OPM) to the secretary of defense. The significance of that, said Steve Edsall, AcqDemo deputy program manager, is that "along with authority and accountability, it provides DOD more flexibility to implement improvements to AcqDemo."

AcqDemo Program Manager Scott Wortman agreed. "It's significant because, rather than having to go through DOD and then OPM, now the secretary of defense has the authority to make the changes. However, we've shared with and leveraged OPM expertise."

The upcoming changes have been reviewed by OPM. "OPM's input was helpful and incorporated," Edsall said.

In addition to the major change from six to three factors, there are many other improvements and new features. The most significant anticipated changes are in the categories of recruitment and staffing, pay administration and employee development.

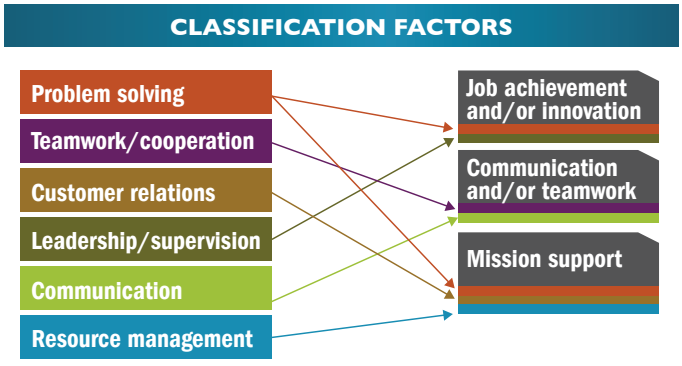
RECRUITMENT AND STAFFING

Direct-hire authorities—Hiring managers in participating organizations will have the option of making on-the-spot tentative job offers to candidates at recruiting events when using a noncompetitive or direct hiring authority. That includes on-the-spot offers to qualified candidates who have a degree required by OPM or DOD standards covering acquisition positions, or qualified candidates in direct support of acquisition positions in a critical acquisition career field.

Direct-hire authorities also include hiring veteran candidates for acquisition positions in a critical acquisition career field in the business and technical management professional career path or the technical management support path.

Additionally, hiring managers will have authority to make direct-hire appointments of acquisition student interns. Managers can

FIGURE 2



HALF AS MANY FACTORS

Among the changes coming to AcqDemo in FY18, perhaps the most significant is the streamlining of AcqDemo contribution factors, the criteria that define and help measure an employee's yearly contributions to the successful execution of the organization's mission.

MASTERING THE FINER POINTS

HR personnel—in the foreground, Gerard Calvin, HR specialist, and in the background from left, Willie Barber, lead HR specialist; Tammy Knox, supervisory HR specialist; and Lorraine Kamaal, HR specialist—receive updated training in Army AcqDemo policy, processes and procedures at Aberdeen Proving Ground, Maryland, in May. The four are with the Army Acquisition Workforce Hiring Cell of the Civilian Human Resources Agency, Northeast Region. (Photo by Catherine DeRan, U.S. Army Acquisition Support Center)

offer intern positions to recent graduates in a critical career field. Managers also will be able to offer acquisition intern appointments to undergraduates who have not yet completed their studies in a field directly linked to an acquisition position's requirements for one of the critical career fields.

"We call this our version of the Pathways [federal hiring] program," Wortman said, "which we think will provide improved benefit for the acquisition community." He added that this major improvement will enable participating organizations to "make direct offers and bring [candidates] in, and put them into a program to advance them in their careers."

"Direct-hire authority doesn't apply to the administrative support career path, which accounts for only 2 percent of the AcqDemo workforce," Wortman said.

Scholastic achievement appointment—This modification of the existing scholastic achievement appointment makes it available to a wider range of candidates.

Rule of many—When there are 25 or fewer candidates for a position, the hiring manager, who knows the subject matter better than HR personnel, will have the option of reviewing all the candidates to find the skills needed. "It gets the pool of candidates to the supervisor much faster, and then the supervisor has complete control of identifying the best candidates," Wortman said.

Voluntary Emeritus Program—This, too, expands an existing part of AcqDemo, opening it up to military and civilian retirees who supported the acquisition workforce but were not in positions that fell under the Defense Acquisition Workforce Improvement Act.

Expanded supervisory and managerial probationary periods—This expanded requirement provides adequate probationary periods for current managers with significant responsibility for major programs. "It gives the organization—and the manager—more time to assess that the candidate can do the job," Wortman said. If the increased level of responsibility doesn't work out, the organization can move the new manager back to the previous supervisory or nonsupervisory role.

Reduction in force—In the event of a reduction in force (RIF), Wortman said, "we are moving from a longevity-based system of determining our RIF list to using performance as a primary factor." Although performance has been part of AcqDemo from the beginning, it has never been measured the way that contributions have. This provision changes that, adding a different dimension, and makes CCAS compliant with 10 U.S. Code, Section 1597(f).

Expanded detail and temporary promotion authority—This enables managers to fill open positions at a higher level of responsibility with existing employees beyond the current 120-day limit, to as much as one year within a 24-month period. For example, if an employee's supervisor is on extended leave, that employee in a lower broadband level may be temporarily promoted to a higher level of responsibility, with a

higher salary, for six months. At the end of that period, if circumstances require it, that employee could again be temporarily promoted for another six months within the 24-month period.

PAY ADMINISTRATION

Compensation strategy—Participating organizations will have to look at their compensation strategy deliberately, based on "how the market is doing locally, the value of the position to the organization," Wortman said. "We have cost controls now, but this expectation is adding a level of increased compensation strategy to what we're doing. It's really trying to bring more discipline to the program."

Promotions—This provision clarifies whether a move from the GS to an AcqDemo position constitutes a promotion or a reassignment (lateral move). For the purposes of AcqDemo, a permanent or temporary promotion action occurs when a non-AcqDemo federal employee or an AcqDemo employee is selected under competitive or merit promotion procedures for an AcqDemo position in a broadband level with a referenced GS grade or level of work in a higher broadband level than would be appropriate for the federal employee's current GS grade or the AcqDemo employee's current broadband level, or a previously held position on a permanent basis in the competitive service.

Accelerated compensation for developmental positions (ACDP)—This new provision enables managers to accelerate compensation based on contribution and performance. "It gives managers flexibility at two points during the year. For example, at the midpoint of the appraisal cycle," Edsall said, "the manager can say [to the employee], 'OK, we think you're ready to move to a higher level of contribution,' because we are a contribution-based system. At that point, they [the manager] can approve a pay raise—up to 10 percent for each midpoint or annual appraisal—within the broadband levels of the developmental position."

So, at two points each year, employees are evaluated for their progress, and a manager is able to give pay raises commensurate with the employee's level of contribution. In addition, ACDP employees are eligible for the CCAS rating and CCAS payouts (both salary increase and award). This can be used in conjunction with the direct-hire intern program, which makes it much more flexible than Pathways.

Supervisory and team lead cash differentials—"This is a big one," Edsall said. Local commanders can use the differentials as an additional tool to incentivize and compensate supervisors and team leaders as defined by the OPM General Schedule Supervisory Guide or Leader Grade Evaluation Guide in such situations where salary inequities exist between the supervisor's and nonsupervisory subordinates' basic pay; when supervisory or team leader positions are extremely difficult to fill; or when the organizational level and scope, difficulty and value of position warrant additional compensation.

Based on their needs, organizations can offer incentives to candidates for team lead or supervisory positions with a 5 or 10 percent pay boost above their current salary, depending on their role. "That's [calculated] off the base pay," Wortman said, adding, "The provision is essentially intended for highly technical professional people who could assume a supervisory

SPREADING THE WORD

NAVSEA employees converting to AcqDemo ask questions while attending a program overview at the Washington Navy Yard in July 2016. (Photo courtesy of NAVSEA Public Affairs)

WELCOME TO ACQDEMO

Gen. Ellen M. Pawlikowski, commander of Air Force Materiel Command (AFMC), addresses the audience at an AcqDemo town hall meeting in May at Wright-Patterson Air Force Base, Ohio, in preparation for the transition of approximately 13,000 AFMC employees to AcqDemo in June. The Air Force represents the single largest segment of AcqDemo's more than 33,600 participants—47 percent—followed by the Army, at 25 percent; the Navy, at 14 percent; and the Marine Corps, at 5 percent, according to OUSD(AT&L) Human Capital Initiatives. (U.S. Air Force photo by Stacey Geiger)

role, but who might not consider taking on a managerial role with all the extra responsibilities but no extra pay." This cash differential is not permanent and will be reviewed annually as part of the pay pool panel review process.

Special act awards of $25,000—The acquisition executives for each of the services have the option under this provision to give "special act" awards to employees of participating AcqDemo organizations of not more than $25,000, an increase over the current $10,000 limit. "If you're in acquisition and you jump a big hurdle or solve a major enterprise problem, it gives the acquisition executive of the service the ability to say, 'This person really just saved the day or saved millions of dollars,' " and reward them commensurately, Edsall said.

"Very high score"—This new provision provides scores in the NH, NJ and NK career paths above the current maximum of 100, 83 and 61, respectively, to a very high score of 115, 95 and 70, so that managers have more flexibility in rewarding contributions. It provides increments for NH of 105, 110 and 115; for NJ of 87, 91 and 95; and for NK of 64, 67 and 70. (See Figure 3.)

Performance assessment—Although performance has always been a part of AcqDemo, its design has been contribution-focused. Incorporating a separate performance assessment adds another dimension to employee appraisals for a fuller picture. The same criteria used for evaluating contribution will be used to measure performance.

EMPLOYEE DEVELOPMENT

Sabbaticals—This provision expands the existing sabbatical provision, which is open to all eligible employees with seven years of federal civilian service, to require a post-sabbatical service requirement that is three times the length of the sabbatical. For example, if an employee takes a six-month sabbatical, the individual has a service obligation of 18 months.

Student intern relocation incentive—This incentive gives local commanders or their designees the option to approve relocation incentives for new student interns and to student interns whose work site is in a different location than their college or university or their permanent residence. "Let's say, for example, there is a student in college in California pursuing an engineering degree, and it's a very competitive area for technical talent. If you want to attract them to take a student internship on the East Coast, this relocation incentive will help many decide 'yes.' This will not only help with attracting top talent for student internships, but also increase our chances with a follow-up top talent hire after graduation," Wortman said. Edsall added, "Students typically don't have much money. So if you tell a student you want them to intern with you but then tell them they have to pay their own way, it's not likely that they're going to take the job."

CONCLUSION

Significant improvements to the Civilian Acquisition Workforce Personnel Demonstration Project are projected to be implemented in 2018. The design improvements are the result of extensive collaboration among OUSD(AT&L) Human Capital Initiatives, the AcqDemo Program Office and organizations participating in AcqDemo across DOD.

The last step in finalizing the improvements is the upcoming Federal Register notice process, which will give the public an opportunity to provide input on the changes.

Improvements include streamlining of contribution factors from six to three, providing new direct-hire authorities, adding supervisory and team leader cash differentials, simplifying

FIGURE 3

CAREER PATH	CATEGORICAL SCORE	NUMERICAL SCORE RANGE
Business management and technical management professional NH-04	Low	79-83
	Medium	84-95
	High	96-100
	Very High	115
Technical management support NJ-04	Low	61-66
	Medium	67-78
	High	79-83
	Very High	95
Administrative support NK-03	Low	38-46
	Medium	47-56
	High	57-61
	Very High	70

Single very high score to incremental very high scores

CAREER PATH	CATEGORICAL SCORE	NUMERICAL SCORE RANGE
Business management and technical management professional NH-04	Low	79-83
	Medium	84-95
	High	96-100
	Very High	
	Low	105
	Medium	110
	High	115
Technical management support NJ-04	Low	61-66
	Medium	67-78
	High	79-83
	Very High	
	Low	87
	Medium	91
	High	95
Administrative support NK-03	Low	38-46
	Medium	47-56
	High	57-61
	Very High	
	Low	64
	Medium	67
	High	70

THREE DEGREES OF 'VERY HIGH'

By introducing increments to the very high scores in the evaluation of employees' contributions, AcqDemo will provide managers more flexibility to reward outstanding contributions.

classification standards, providing accelerated compensation for developmental positions, increasing the amounts for special act monetary awards, expanded detail and temporary promotion periods, and more.

Planned streamlining improvements and new features will enhance the value of AcqDemo to organizations and their team members as they contribute to successfully execute the acquisition mission.

For more information, contact the Army AcqDemo Program Office at 703-805-4512 (DSN 655). For more information on Army AcqDemo training, contact Sandra Brock at ***sandra.j.brock.civ@mail.mil****.*

MR. JEROLD A. LEE, a retired Army lieutenant colonel, is director of the Army AcqDemo Program, Fort Belvoir, Virginia. He holds an M.S. in administration from Central Michigan University and a B.S. in business administration from the University of San Francisco.

CONTRIBUTORS: ***Mr. Scott Wortman****, DOD AcqDemo program manager, and* ***Ms. Sandra Brock****, Army AcqDemo deputy program director.*

ARMY ACQDEMO ROADSHOW

The Army AcqDemo Program Office plans to train the acquisition workforce on Federal Register changes via an educational tour that will run from this October through March 2018. The Army AcqDemo team will offer training at regional locations where large populations of the participating Army AcqDemo organizations reside. Details will be available in late summer from command-level pay pool administrators or by contacting Sandra Brock at **sandra.j.brock.civ@mail.mil**.

TAKING THE SHOW ON THE ROAD

Some of the workshops JPEO-CBD is conducting in collaboration with DAU focus on understanding contracting in order to achieve superior contract vehicles and contractor performance, while others seek ways to reduce administrative burden. With the program now in its second year, the curricula were recently offered to other PEOs. (SOURCE: JPEO-CBD)

JOINT PROGRAM EXECUTIVE OFFICE
JPEO-CBD
CHEMICAL AND BIOLOGICAL DEFENSE

No Time to Lose

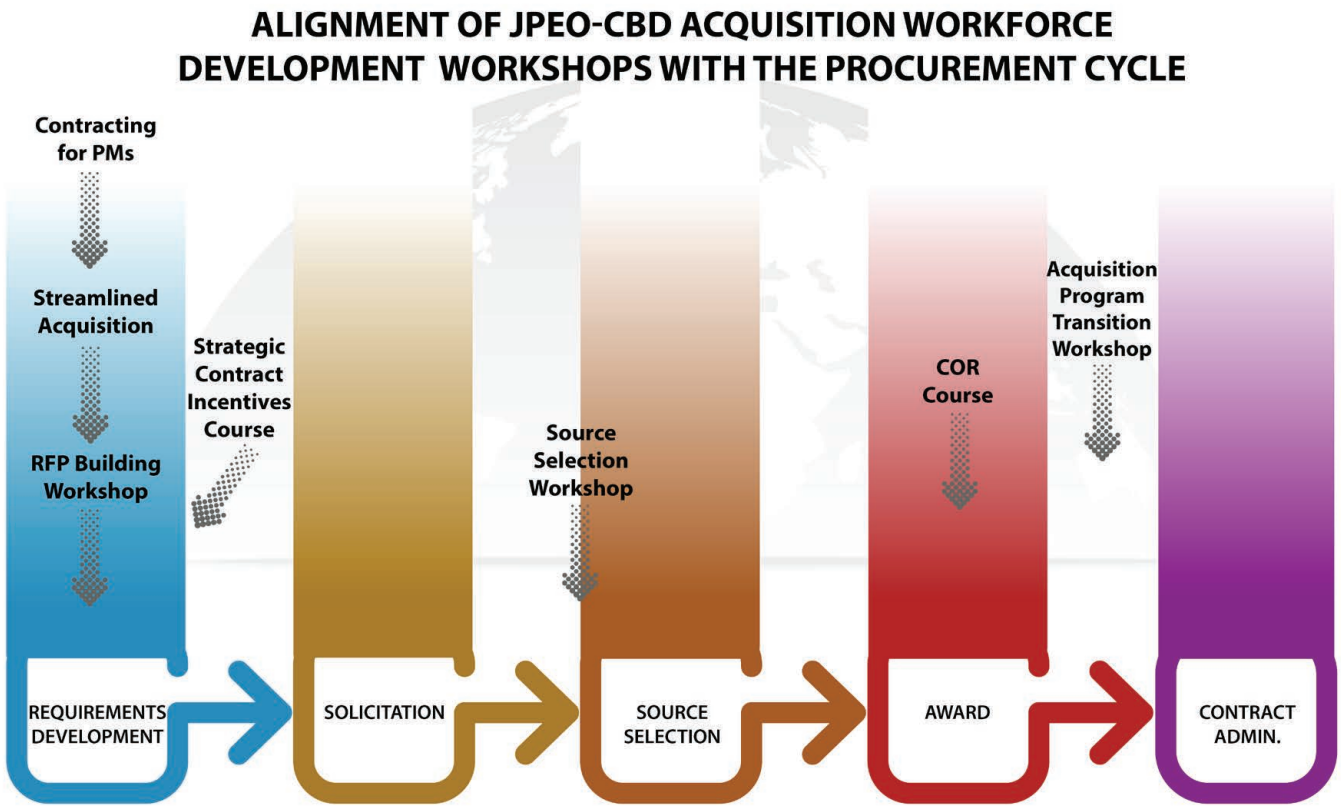
JPEO-CBD seeks to reduce acquisition lead time through tailored professional training workshops with DAU.

by Mr. Jeff Megargel

"Opportunities multiply as they are seized."
– Sun Tzu

As the Trump administration completes its transition, Better Buying Power may be replaced with something different, but the tenets and goals of acquisition reform will remain largely the same. All program executive offices within the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (OASA(ALT)) will be seeking ways to reduce administrative lead time while fielding and maintaining the best-quality equipment and services possible within resource constraints.

The Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) has partnered with Defense Acquisition University (DAU) Mission Assistance to sponsor a series of workshops designed specifically to improve acquisition timelines. The curricula are intended for pre-milestone A or B program teams of Acquisition Category (ACAT) III programs but can be tailored to any effort. They focus on understanding contracting and applying that understanding to achieve superior contract vehicles and contractor performance. Other workshops allow credentialed DAU instructors and program teams to immerse themselves in developing exceptional solicitation documentation and finding ways to reduce the administrative burden. This is achievable by eliminating oversight that is appropriate for ACAT I programs but overkill for the ACAT III efforts that make up the bulk of the JPEO-CBD's portfolio. The JPEO-CBD is in the second year of this program and recently offered the curricula to other PEOs across ASA(ALT).



WORKING STEP BY STEP

In partnership with DAU Mission Assistance, the JPEO-CBD has tailored its workforce development sessions to the various segments of the procurement cycle, such as the workshop on building a request for proposal (RFP) and the contracting officer's representative (COR) course on awarding contracts. (SOURCE: JPEO-CBD)

NO MORE 'CONTRACT OF THE DAY'

Douglas Bryce, joint program executive officer, is convinced that program managers (PMs) must have more than a fundamental knowledge of contracting to influence contracting-related decisions that impact their programs. "Far too often, the program management team throws their input over the wall to the contract team, and 24 months later we have a contract," Bryce said. "This leads to the 'contract of the day' approach. The key is to use the right contract type and incentives for the program."

With this goal in mind, Bryce directed his staff to reach out to DAU to create a "Contracting for Program Managers" workshop that orients newly assigned program management personnel to the art and science of government contracting. The topics include contracting strategies, types of contracts, incentivizing contractor performance, the Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement, and how they all relate to "DOD Instruction 5000.02, Operation of the Defense Acquisition System." The intent is not to create contracting experts, but to establish a level of understanding that facilitates proactive engagement with the contracting community as the program management team plans acquisition strategies.

The JPEO-CBD also has assigned former civil service contracting professionals to each program office. They assist in developing acquisition packages and liaise with their peers in the supporting contracting activities. This enables the program teams to collaborate with contracting subject matter experts who are also fully vested in program acquisition strategies. The result of this collaboration is acquisition packages that require far less rework between the acquisition and contracting shops, as well as procurement strategies that are more tailored to a specific requirement versus one size fits all.

The JPEO-CBD also has sponsored several workshops on contract incentives, with a DAU subject matter expert providing a comprehensive review of contract incentives and their appropriate use in acquisition programs. After completing the workshop, participants should understand the fundamentals of how and when to incentivize contractor performance, when cost or fixed-price incentive contracts are appropriate and, most importantly, how to discuss contract incentives with the contracting professionals during the formulation of acquisition and procurement strategies.

Bryce requires new-start programs to complete a streamlined acquisition strategy development workshop well before milestone A. The workshop brings together program teams, functional staff and user community stakeholders to address major topic areas for development and potential streamlining of their program acquisition strategy. The DAU instructor tailors the workshop to one program and encourages optimal participation from the stakeholder community. This always includes the contracting officer and specialist, but also can include budget analysts, legal advisers, small business advocates and technical specialists who might only engage for selected topics.

The OTA training "was perfect to help expand our horizons and develop a full acquisition tool set."

As an example, the workshop conducted for the Enhanced Maritime Biological Detection (EMBD) program included participants from the U.S. Naval Surface Warfare Center Dahlgren Division. Representing the Navy user community, they provided insight concerning the challenges of upgrading a legacy sensor system on a surface platform, including compatibility with other shipboard systems and fielding the systems in line with deployment schedules.

Over several iterations, the program teams have universally praised the workshops for facilitating an immersive environment where the team can work collaboratively and develop critical thinking skills and ideas that are directly relevant to reducing the administrative burden as they develop and gain approval for ACAT III program acquisition strategies. The lectures cover multiple topics that must be addressed in acquisition plans, including risk management, affordability, should-cost and supportability.

Immediately following the lecture, the teams "murder board" each topic as it relates to their program: Small teams address each topic and document any assumptions, constraints, risk mitigations and proposed solutions on a big sheet of butcher block paper. At the end of the session, each team briefs its findings to the workshop as a whole. The program team members can tear off the page and carry their brainstorming back to their workspaces to refine and include in formal documentation.

"The workshop is very helpful in breaking down the components of the acquisition strategy into manageable parts," said Michele Parrish, EMBD team lead. In some cases, the workshops have revealed the need for additional market research or more detailed analysis of data rights provisions. In others, the teams have identified how contracting methodologies can have a major impact on reducing documentation requirements.

For instance, using existing multiple-award contract vehicles often is more efficient than creating a new contract vehicle specific to one requirement. The assumed duration to complete all the steps necessary to award the typical stand-alone single award contract today is 18 to 24 months. But many program teams are unaware that they have access to existing contract vehicles that can reduce procurement schedules by months. They just need this input early enough to incorporate it into the acquisition strategy. Workshops can make teams aware of this benefit.

AN INTRODUCTION TO NONTRADITIONAL METHODS

JPEO-CBD's portfolio contains a number of programs that are suited for procurement within the commercial marketplace, including vaccines and specialized textiles. As a result, the JPEO-CBD has established an other transaction authority (OTA) consortium in procuring vaccines and therapeutic drugs. "Companies that have never participated in a FAR-based procurement are now in line to support multiple Joint Vaccine Acquisition Program requirements," said Gary Wright, director of the JPEO-CBD Contracting Management Office. The Joint Project Manager for Protection is also using an OTA to work with manufacturers of specialty fabrics and materials. The project office is seeking advanced chemical

DOUBLE TEAMING TO DELIVER SOLUTIONS

The workshops developed by JPEO-CBD and DAU empower program teams to accelerate schedules and reduce costs while maintaining high standards of capability delivery. (SOURCE: U.S. Army Acquisition Support Center/chipstudio/iStock)

and biological protection ensembles and design concepts that might be used in handwear, footwear and respiratory protection systems.

Companies that produce cutting-edge technologies might not be willing to conform to accounting practices or other regulations that are mandatory for participation in DOD programs. For instance, maintaining a compliant accounting system is extremely expensive, and the revenue that results from a given DOD program may be immaterial in a company's overall income stream. OTA agreements allow such companies to provide prototypes for the JPEO-CBD programs without having to meet the many regulatory requirements of an arrangement governed by the FAR.

To implement and sustain the consortium, the JPEO-CBD created two workshops that enabled potential program teams to leverage OTAs. The training is divided into an introductory workshop that allows program teams to test the waters and an advanced workshop that goes through the detailed process for establishing and managing an OTA program.

In January, DAU conducted two basic workshops at U.S. Special Operations Command using the JPEO-CBD sponsored curriculum. One was tailored to the contracting community and the other to the program managers. The OTA training "was perfect to help expand our horizons and develop a full acquisition tool set," said Col. John Reim, program executive officer for Special Operations Forces – Warrior. "I suspect that you will be hearing more from SOF AT&L [Special Operations Forces Acquisition, Technology and Logistics] in the near future for additional information and lessons learned."

The JPEO-CBD also offers workshops focused on developing high-quality solicitation documentation and on training government personnel to serve on source selection evaluation boards. The RFP development workshop capitalizes on the work already completed by acquisition teams but blends in best practices as presented by DAU. The DAU instructors have the benefit of observing program teams across DOD and can offer lessons learned as they lead the team through refining its documentation.

For instance, despite the best efforts of contracting and program management personnel, some solicitations require multiple amendments following release as a result of industry feedback and questions regarding the documentation. Borrowing from industry practice, the Joint Project Manager for Nuclear, Biological and Chemical Contamination Avoidance adopted a process in which a senior contracting expert performs a formal cross-check of the draft solicitation sections, including the Statement of Work (Section C), Instructions to Offerors (Section L) and Evaluation Criteria (Section M). The emphasis is on ensuring that statements of work reflect performance specifications and that instructions to offerors and evaluation criteria are optimized so that the government procures the right solutions for its acquisition needs.

Using this process, the program team corrects the draft documentation before it goes to the contracting activity. Normally, these major sections of a solicitation are prepared by two completely

different interests: The acquisition team generates the statement of work and the performance specification, but the contracting officer generates sections L and M—often weeks if not months later. The workshop seeks to complete all major sections in a deliberate and fully integrated environment. The result is less confusion among offerors when they prepare proposals; more realistic cost proposals, as offerors are less likely to mitigate risks through management reserves; and better-performing programs post-award because the government and the winning offerors have a clearer understanding of what the program really needs to provide the capability to the warfighter.

After the solicitation is released and before receipt of proposals, the JPEO-CBD's source selection evaluation boards conduct a practice evaluation of the proposals using the actual solicitation documentation. The source selection workshop (DAU Course WSC 005) covers the roles of each board member, drafts practice source-selection decision documentation and has the team conduct mock debriefs for unsuccessful offerors.

Finally, the JPEO-CBD and DAU are providing the Acquisition Program Transition Workshop (DAU course WSM 011), which brings together the program teams from the government and the winning offeror to reach a common understanding of the government's expectations and how the contract will be managed. According to Ashton B. Carter, former secretary of defense, "The benefits of this workshop include early alignment of government and industry team organizations, publication of road maps to integrated baseline review and other near-term planning events, agreement on management of scope and processes, and resolution of issues including differences in interpretation of contracts and other documents."

Throughout the workshop, DAU instructors highlight best practices they have observed across DOD. In nearly all cases, there are opportunities to improve the quality of deliverables—such as monthly cost reports or administrative processes—simply by demonstrating how a company uses automated tools and skilled employees to accomplish the same tasks on other contracts. There is opportunity for open dialogue that enables the company to demonstrate the value-added aspects of its reporting and to tailor the soft deliverables—e.g., monthly cost reports or government-furnished property inventories—based upon what the COR can really use. This workshop provides a forum in which the government can meet face to face with its counterparts. It is an opportunity to emphasize the need to manage program risks and establish an effective methodology to leverage the contractor's capabilities while meeting the government's expectations.

CONCLUSION

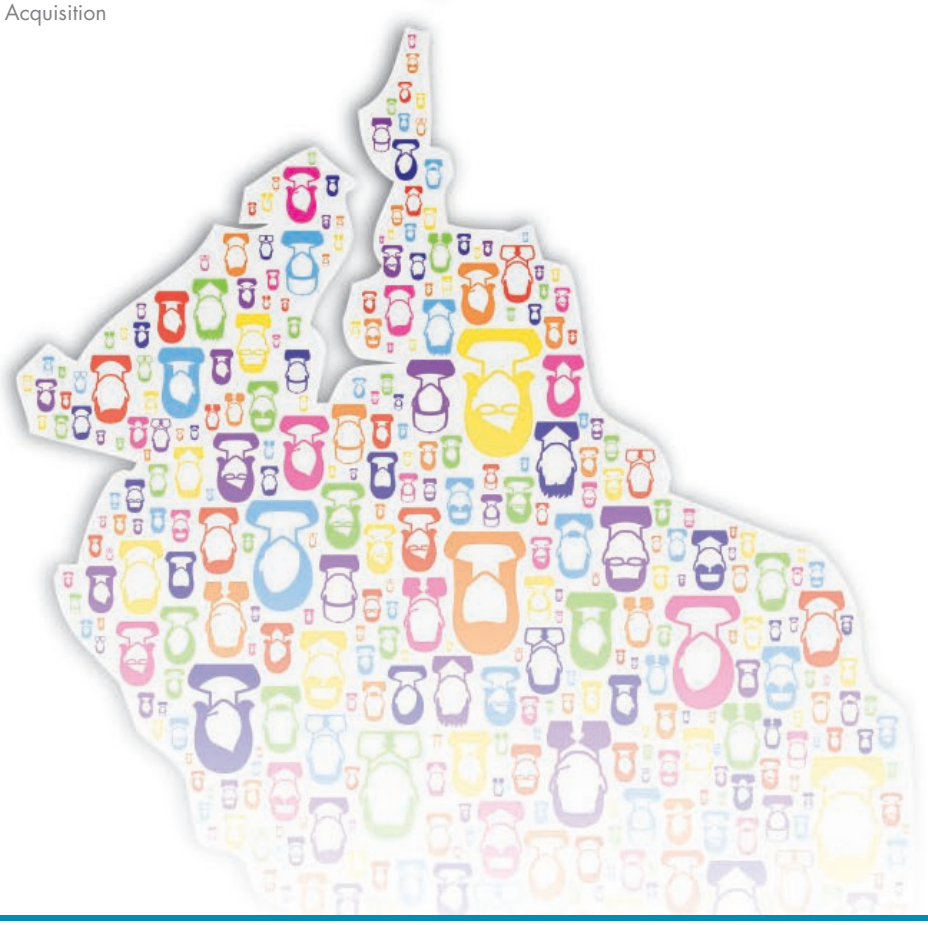
Although Better Buying Power may be replaced with new direction for achieving acquisition objectives, the basic tenets are likely to remain the same. The JPEO-CBD has demonstrated that PEOs can tailor DAU expertise to achieve material results at the program level. The key is to leverage the knowledge resident at DAU to tailor training for each program team depending upon where it is in the acquisition cycle, and then conduct the workshops in an immersive environment where teams can concentrate on producing quality results in collaboration with functional staff and technical experts.

The JPEO-CBD is planning a full calendar in FY18, including workshops for all PEOs across ASA(ALT). It is the JPEO-CBD's desire to conduct multiple iterations of the training in the five geographic areas where the PEOs are concentrated. The Program Executive Office for Combat Support and Combat Service Support has requested a streamlined acquisition strategy development workshop in the Warren, Michigan, area this summer. Some of the curricula, including the OTA workshops, are appropriate for any agency within DOD and beyond.

For more information, contact the author at ***jeffrey.w.megargel.ctr@mail.mil****, or go to* ***https://www.jpeocbd.osd.mil/*** *or* ***https://www.dau.mil/consulting-services/****.*

"The workshop is very helpful in breaking down the components of the acquisition strategy into manageable parts."

MR. JEFF MEGARGEL is a former Marine Corps contracting officer and vice president with Science Applications International Corp. He is currently supporting the JPEO-CBD Contracting Management Office as an employee of Moss Cape LLC. He holds an M.S. in contract and acquisition management from the Naval Postgraduate School and a B.A. in history from The Pennsylvania State University. He specializes in helping program teams develop contracting strategies.



ARE YOU LOOKING AT ME?

Using census and demographic data to inform adjustments in recruitment can ensure a representative selection from the region in which an organization is based, as well as a mix of perspectives and experiences that yields a stronger, more innovative workforce. (Image by the U.S. Army Acquisition Support Center)

Building a Better MIRROR

Crunching data methodically provides clearer image of organizational diversity.

by Mr. Thom Hawkins

You can never be sure, when you look in a mirror, that what you see is what other people see. For an organization, measuring diversity can elicit the unsettling images of a funhouse mirror, and standing too long in front of the mirror that makes us look tallest or laugh hardest will not reveal how we truly look. So, how do we know if our ideas of diversity mirror those of others? How can we create the healthiest, most genuinely and appropriately diverse workplace possible? What is the right mirror to use?

According to U.S. Equal Employment Opportunity Commission (EEOC) Management Directive 715, an organization conducting a self-assessment "shall compare their internal participation rates with corresponding participation rates in the relevant civilian labor force. Geographic areas of recruitment and hiring are integral factors in determining 'relevant' civilian labor force participation areas."

Oh, shall we? Examples, please! Except that no examples are forthcoming from the EEOC, and our review of Management Directive 715 reports from across the federal government found that even when an agency is relatively centralized geographically (for example, the National Institutes of Health), it used the U.S. Department of Labor's National Civilian Labor Force (NCLF) data as a point of comparison, and applied the term "relevant" only to limit the occupations considered, not the region.

The U.S. is hardly homogeneous, from a demographic perspective. The population of Washington state, for example, is considerably different from that of Washington, D.C. There's more than just two letters separating Kansas and Arkansas. And while Hawaii and Rhode Island are both small states, it's safe to assume that there's a much higher percentage of native Hawaiians or Pacific Islanders in Hawaii than in any other state—and probably very few actual islanders in Rhode Island. So, adjusting a single organization's demographic makeup to fit a national profile is like going on a diet because a curved mirror is making you look fat.

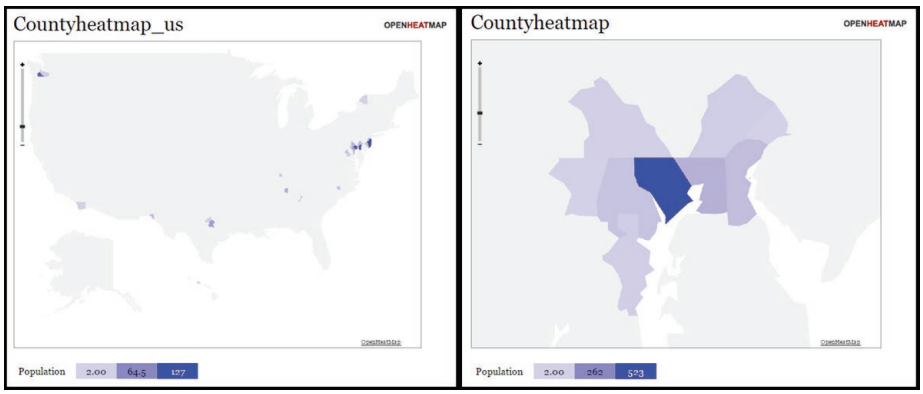
It's not you, it's your mirror.

FINDING THE RIGHT MIRROR

Some organizations may indeed have so many employees dispersed across the country that using the NCLF data is the only appropriate comparison. However, short of rapid advances in plate tectonics, we are not going to radically shift a region's demographic makeup—but we can adjust our recruiting to ensure a representative selection from the surrounding area.

The Program Executive Office for Command, Control and Communications – Tactical (PEO C3T) is based at Aberdeen Proving Ground, in Harford County, Maryland. To identify the area from which we might expect to draw our workforce (for example,

FIGURE 1



THE VIEW FROM UP HERE

PEO C3T mapped and examined national and regional census data to determine whether the demographics of its workforce mirrored national and local demographics, in response to EEOC Management Directive 715. (Image courtesy of the author and OpenHeatMap.com)

Harford, Cecil and Baltimore counties), we first looked at the location of our current workforce. Using the Manpower Information Retrieval and Reporting System, our workforce accountability system, we identified how many employees lived in each ZIP code across the United States. We then summed up the employees by ZIP code into counties and generated a population map using Open Heat Map. (See Figure 1.)

In addition, we found that we had a number of employees who commuted from central and northern New Jersey, at least partly because of base realignment and closure measures that moved command, control, communications, computers, intelligence, surveillance and reconnaissance professionals from Fort Monmouth, New Jersey, in 2010. Because we are not actively recruiting residents from New Jersey for our current location in Maryland, we also eliminated those data from the analysis. The final result showed a concentration of employees around Harford County. (See Figure 2.)

Using the population map, we determined that an appropriate regional composite should include Harford County, any county sharing a border with Harford, and any county that shares a border with one that borders Harford County. To create the demographic makeup of the regional composite, we used data from the U.S. Census (2015 projection), adjusted proportionally based on the percentage of our workforce currently residing in each of those counties. Approximately 64 percent of our current population resides in Harford County; therefore, we multiplied each of Harford County's demographics by 0.64 so that 64 percent of our regional demographic would "look like" Harford County.

For example, Harford County's population is 4.3 percent Hispanic or Latino, so we multiplied 0.043 by 0.64 to calculate Harford County's share of our region's Hispanic or Latino population. We added that to the product of Cecil County's 17 percent of our workforce and that county's 4.2 percent Hispanic or Latino population, etc.

Because census data are separate from labor data, we compared national census data to national labor participation rates for women and men and adjusted the ratio in our regional population accordingly, to account for different levels of labor participation by women and men. We assumed that there was no difference in labor participation based on race. Figure 2 shows the different diversity profiles for the NCLF and the federal workforce, and a demographic profile we developed based on the region from which we, PEO C3T, expect to recruit our workforce.

MIRROR, MIRROR, ON THE WALL …

The question, "How diverse are we?" can be partially answered with EEOC statistics. But it begs a second question: "How diverse should we be?" After all, "diverse" is a relative term, so it only makes sense in comparison. We could directly compare our organization's diversity profile with the profile of our region, but if we were 1 percentage point below, does it mean we are falling short? How far off is it OK to be? For that matter, if we were 1 percentage point up somewhere, it would mean we were down somewhere else and would forever be chasing a perfect balance. What is more important is that there is no evidence of bias—and to look for evidence of bias, we can use statistics.

If we had a jar with seven blue marbles, 10 red marbles and eight green marbles, and I reached in and pulled out only the eight green marbles, what is the probability that this selection was made at random? It's certainly unlikely, though possible. It is more likely that there was some type of bias involved. Maybe I like green marbles. Or maybe the green marbles were more lightweight than the blue

FIGURE 2

	National Civilian Labor Force	Federal Workforce	Regionalized Population
Sex	**Percentage**	**Percentage**	**Percentage**
Female	46.83	43.23	46.31
Male	53.17	56.77	53.69
Race			
American Indian or Alaskan Native	1.04	1.65	0.33
Asian	5.85	5.58	3.26
Black or African-American	11.74	18.07	15.39
Hispanic or Latino	16.39	8.39	4.92
Native Hawaiian or Pacific Islander	0.43	0.45	0.10
White	62.85	64.66	74.56
Two or more races	1.70	1.20	2.43

IDENTIFYING OPPORTUNITY

PEO C3T analyzed diversity profiles for the national civilian labor force, the federal workforce and the regional population from which it draws most of its employees. Identifying where the diversity of its workforce differs significantly from that of the region in which it operates can better shape an organization's recruiting strategy. (Graphic courtesy of the author)

and red marbles and shifted to a more accessible position when I tilted the jar to reach in. Whether the biased selection was intentional or not, the fact that my selection was unlikely to be pulled at random from the larger population means that we should investigate the cause.

With employees, the bias could be that we hire a lot of engineers, and women are underrepresented in the field of engineering. This raises some questions we then need to consider: If we try for equal representation, is that another form of bias? Do those positions actually require an engineering degree, or are we hiring engineers out of habit? What can we do to effect change at the root of this problem—that is, how can we ensure a more diverse field of candidates in the engineering discipline?

We used a two-proportion test to determine whether the difference in proportions for a particular demographic was within the range of expected variability, the first proportion being the target demographic and the other proportion being the sum of all other demographics. The result tells us how likely it is that we would have the demographic proportions that we do if we hired our workforce at random from the population in our region.

When the data indicated that a particular demographic was underrepresented in our organization, we considered the underlying causes or types of bias, and how the result would impact our recruitment strategy. In some cases (e.g., American Indian or Alaska Native, Native Hawaiian or Pacific Islander), the proportions were too low for a valid statistical test; those we did not target for action.

CONCLUSION

Identifying where our organization's diversity differs significantly from our region's will allow us to develop an appropriate recruiting strategy, like increasing our presence at predominantly female or African-American college and university job fairs, without chasing after unachievable metrics. In the end, we will have to move beyond objective EEOC metrics because we are seeking a workforce that possesses diverse backgrounds, experiences and ways of thinking, a workforce that will bring together varied perspectives to solve problems as a team.

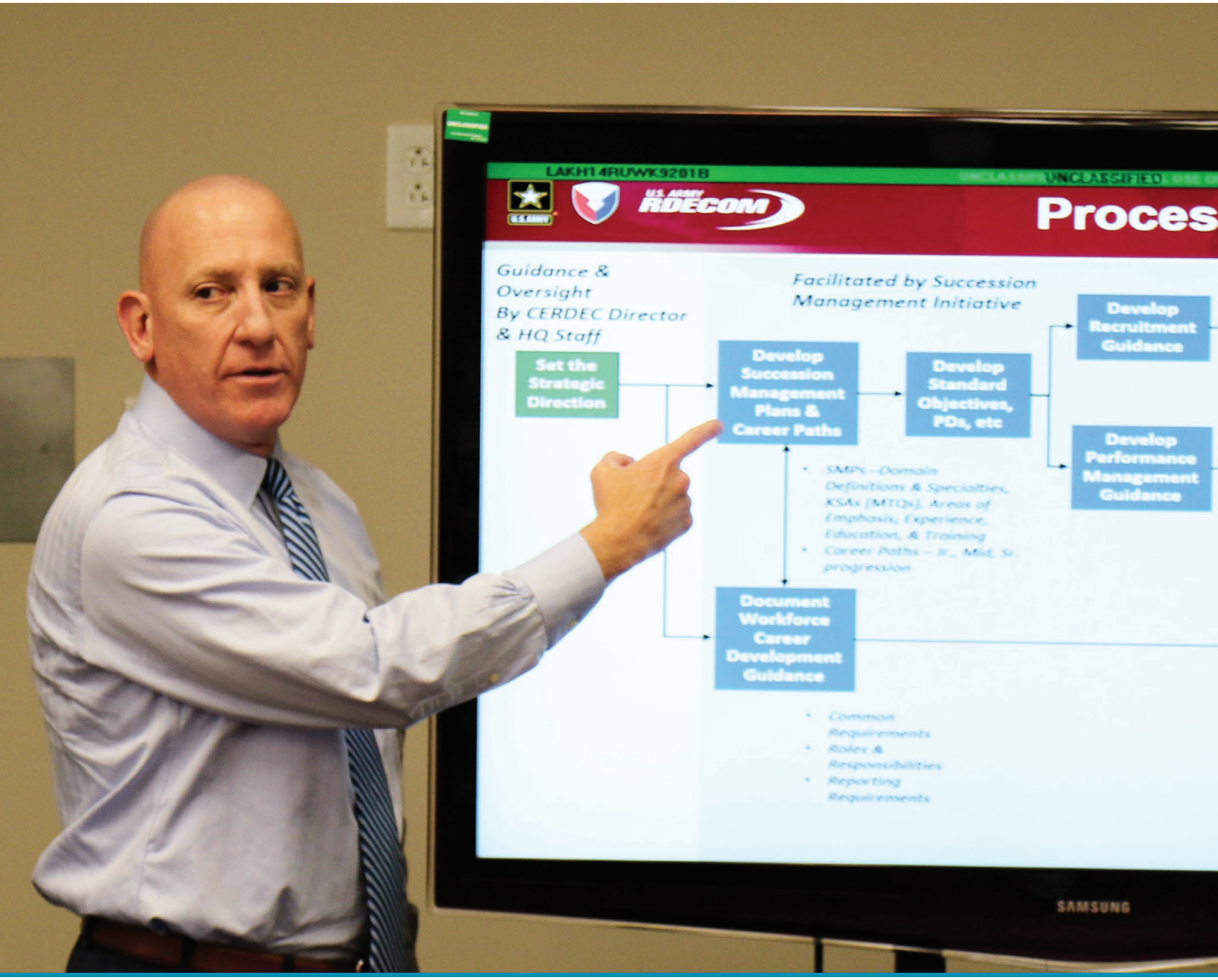
Statistical analysis has moved us out of the funhouse and allowed us to create a mirror that captures an accurate image of our organization's personnel appearance. With such a mirror in place, we can now see our community in the reflection of ourselves.

For more information, contact the author at ***jeffrey.t.hawkins10.civ@mail.mil****. For more information about PEO C3T, go to* ***http://peoc3t.army.mil/c3t****.*

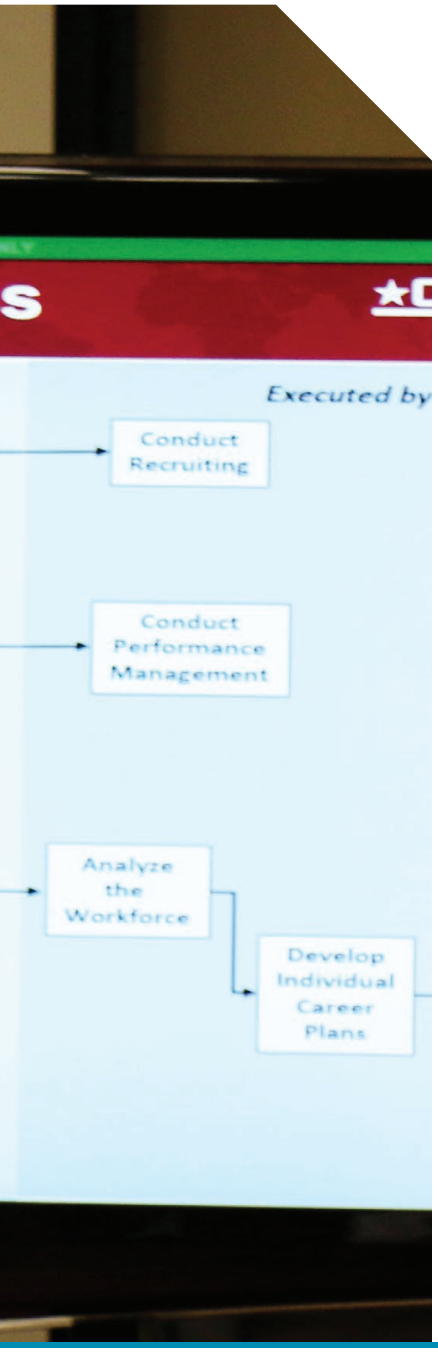
MR. THOM HAWKINS is the chief of program analysis for PEO C3T. He holds an M.S. in library and information science from Drexel University and a B.A. in English from Washington College. He is Level III certified in program management and Level I certified in financial management, and is a member of the Army Acquisition Corps. He is an Army-certified Lean Six Sigma black belt and holds Project Management Professional and Risk Management Professional credentials from the Project Management Institute.

INITIAL FEEDBACK: POSITIVE

The author describes the new talent management initiative to employees. In focus groups, employees have rated the first phases of the initiative positively, noting that organizationwide guidance about the requirements of each job gives employees a way to manage their careers without having to rely entirely on a supervisor or mentor. (Photo courtesy of CERDEC)



A DIFFERENT WAY OF DOING BUSINESS



CERDEC's talent management initiative incorporates a new, enterprisewide approach to help employees reach their goals while strengthening the organization.

by Mr. John S. Willison

Two years ago, the U.S. Army's Communications-Electronics Research, Development and Engineering Center (CERDEC) faced an unpleasant reality: More than 30 percent of our almost 2,000 government employees were eligible to retire or would be soon. Taking steps to address that challenge proactively, we launched a succession management initiative. But a growing realization that talent management was the key to strengthening the workforce prompted us to expand our focus.

It is easy—and common—for an organization to declare that "people are our most important asset." It is significantly more challenging and more meaningful for an organization to develop, implement and maintain an enterprise talent management strategy that embodies that claim. The future of the organization, and the foundation of our ability to deliver capabilities never before imagined by Soldiers, are rooted firmly in our ability to attract, develop and retain talent. Over the past two years, CERDEC dedicated significant executive attention and resources to putting in place such a strategy, which we continue to refine.

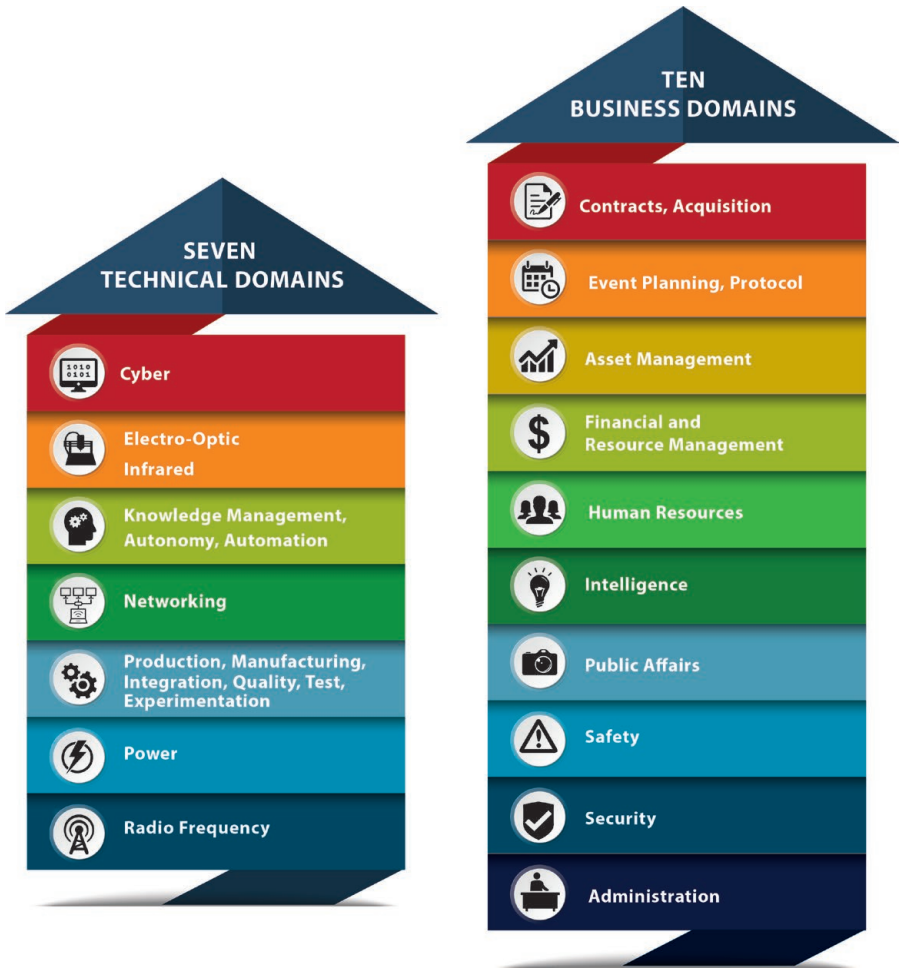
The intent of the talent management initiative is to treat the recruitment and development of our employees as a top priority for CERDEC. Further, we intend to invest in the workforce and maximize the number of qualified employees to fill all positions. We believe the key to this is to have clear, standard qualifications published for all positions and to have career development plans for all employees. These and other tenets of the initiative will guide every aspect of talent management at CERDEC and will serve as the foundation upon which we build a qualified and engaged workforce.

DEFINING DESIRED QUALIFICATIONS

Two of the key components of our talent management initiative are talent management plans (TMPs) and domains. TMPs detail the requirements of positions, including the duties they entail and the qualifications expected to be successful. These include mandatory technical qualifications; areas of emphasis, such as business acumen, leadership and soft skills; and other requirements, such as acquisition certification, security clearance and financial disclosure. We define the second component, domains, as technical, business or other disciplines that require a certain knowledge, skill set or educational proficiency. These are similar to the Army career programs and acquisition career fields in that they provide CERDEC employees with recommended training, education and experience for each career level (junior, midcareer and senior) within each domain.

We categorized the work performed by CERDEC employees into seven technical domains and 10 business domains. (See Figure 1.) The technical domains include cyber, networking, radio frequency and power, with subcategories that further define the work, called technical specialties and capability specialties. Technical specialties are those that are largely common across related organizations or functional areas and are taught in academia; capability specialties are those that are unique to DOD and the Army, and typically specific to an organization or functional area. The business domains include financial and resource management, contracts and acquisition, security and human resources. The business domains have subdomains that further define the work. For example, the two subdomains for financial and resource management are budget operations and financial operations and controls.

FIGURE 1



ORGANIZING TALENT REQUIREMENTS

CERDEC categorized the work performed by its employees into domains focused on a technical skill or business function, which require proficiency in specific subjects. Clearer requirements help managers guide employees to the right experience and education, and make it easier to zero in on the right applicant for a new position. (Graphic courtesy of U.S. Army Acquisition Support Center and CERDEC)

The domain descriptions, associated career development and staffing plans provide managers and employees access to position requirements and recommended training, education and experience; inform training and development decisions; allow management and human resource divisions to better plan for the investment of time and funds; enhance the skills of our workforce; and better communicate expectations to potential external applicants for positions within CERDEC. In addition to the technical and business domains, we created career development recommendations for those who are or aspire to become supervisors or team leaders. This was done to encourage development of the unique skills necessary for success in such positions early in an employee's career.

It is our intent to ground all human resource efforts in our talent management initiative, including recruiting, career development and performance management.

MEASURES OF PROGRESS

After two years of hard work, we are beginning to realize the fruits of the talent management initiative. For example, we are using the TMPs and domain definitions to complete a comprehensive review of the job descriptions of all 2,000 employees, with the goal of ensuring that the duties therein accurately reflect the work assigned and, most importantly, include the proper domain designation.

The domain designation is critical to the next step, which involves revising Individual Development Plans to include the domain-specific training and development opportunities recommended by the teams of subject matter experts and outlined in the domain career development plans. The next step is a review and validation of employee performance plans to ensure that CERDEC is measuring employees against defined expectations that represent the duties appropriate to the position's assigned domain.

While it is too early to assess the full impact of this initiative, some key outcomes associated with these steps include the ability for all employees to assess their progress in developing themselves, compared with the comprehensive development plan for their position's assigned domain, as well as for any positions to which they aspire; the ability for supervisors to make more informed recommendations about employee development; CERDEC's ability to make more informed and cost-effective investments in training and development; and the ability to more effectively communicate job requirements and development opportunities to applicants and prospective employees. (See Figure 2, Page 132.)

The latter area is where we have realized the most value since the inception of this effort. Specifically, the existence of a talent management plan and a complementary career development plan for the positions we have recruited to fill has resulted in clearly written staffing plans. Those, in turn, have generated better referral lists, according to CERDEC supervisors who have filled the positions.

We have also received positive feedback from employee focus groups, specifically about the perceived value of defined career development guidance being readily available to all employees so they don't have to rely exclusively on a supervisor or mentor. Rather, they can chart their own path toward their career goals, guided by the plans now available to them. We believe these early results are indicative of the initiative's positive long-term impact on our ability to attract and retain talent.

In addition to making the talent management plans and career development plans available to employees, we finalized and approved a Workforce Career Development Program Handbook, which outlines the overall intent and the roles and responsibilities of all involved. The handbook, combined with the more detailed TMPs and domain documents, will help our employees take actionable steps in their career pursuits and better understand the philosophy behind this effort. The handbook will also encourage the evolution of our culture to fully embrace talent management.

ANTICIPATED BENEFITS

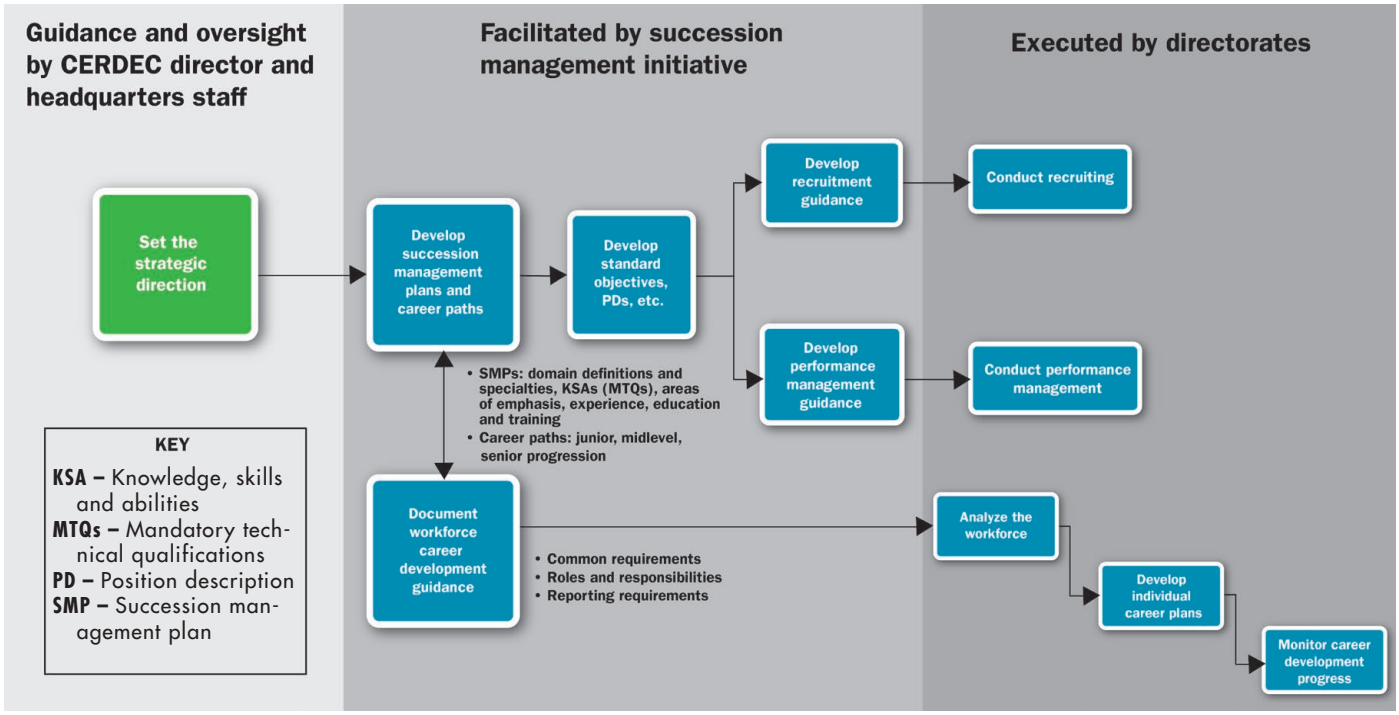
We have already seen a benefit in streamlining, standardizing and communicating our recruitment actions. We anticipate similar benefits in our performance management practices, particularly with regard to greater consistency in plans, ease in measuring performance outcomes and the perception of greater parity in performance evaluations and employee recognition as grounded in measurable objectives.

Shifting to a more enterprise-based approach to planning and executing training will allow us to ensure that all training aligns with the domain career development plans, is the best and most cost-effective available to meet the targeted need, and is scheduled so as to capitalize on economies of scale, thereby maximizing the return on our investment in employees.

Concurrent with this effort, we initiated a centerwide climate survey, using the U.S. Office of Personnel Management's

When my career with the Army started almost 31 years ago, I would have appreciated having a clearly defined set of career paths and decision points on which to base my own plans.

FIGURE 2



STEPS TO A STRONGER WORKFORCE

Two years into its talent management initiative, CERDEC is seeing a number of benefits at all levels of the organization. For example, the TMPs and domain definitions have allowed for a comprehensive review of job descriptions. Now CERDEC is applying this newly developed framework to refine employees' Individual Development Plans, then to review and validate employee performance plans. (Graphic courtesy of CERDEC)

Federal Employee Viewpoint Survey, with the goal of applying the feedback from the survey to assess and enhance employee engagement at CERDEC. The feedback we received from employees has validated the importance of some of the very things that served as the impetus for this effort, particularly the need to place our employees at the center of our focus through a viable, enterprisewide, enduring talent management strategy. We will continue to use this survey to inform decisions about our workforce and refine our talent management strategy.

CONCLUSION

When my career with the Army started almost 31 years ago, I would have appreciated having a clearly defined set of career paths and decision points on which to base my own plans. The input from our survey and employee focus groups demonstrates that our employees are seeking the very same thing, and we are now able to provide that information as an enterprise.

I am confident that our team's hard work will dramatically improve the effectiveness of our organization's recruitment and retention efforts. With that, CERDEC will be able to demonstrate consistently that our people truly are our most important asset.

*For more information, contact the author at **john.s.willison.civ@mail.mil**. You can also follow him on Twitter at **@STCDDir**.*

MR. JOHN S. WILLISON, a member of the Senior Executive Service since 2011, is director of CERDEC's Space and Terrestrial Communications Directorate at Aberdeen Proving Ground, Maryland, where he leads more than 750 civilian, military and contractor scientists, engineers and support staff. Willison earned his M.S. in software engineering from Monmouth University and a B.S. in electrical engineering from Lafayette College. He also completed the Harvard Senior Executive Fellows program and recently became a certified executive coach, completing George Mason University's Leadership Coaching for Organizational Well-Being program.

ENERGIZING EMPLOYEES

JMC brings new employees aboard with its AMPED program to develop a workforce that's enthused, engaged and committed.

by Ms. Erica Slattery, Ms. Heather Tahja and Ms. Nicole Kirschmann

Faced with two challenges—a big chunk of its workforce nearing retirement age and a growing number of new hires—the Joint Munitions Command (JMC) has rolled out a new training program that's increasing connection and motivation among new and existing employees.

Launched in January 2015 and based on research conducted across the JMC workforce, the Achieving Maximum Professional Employee Development (AMPED) program is designed to welcome new employees and show them the breadth and depth of JMC—the organization, its mission and its people.

Shifting demographics have resulted in increased hiring at JMC headquarters in recent years, prompting a corresponding exploration of onboarding practices that culminated in the creation of AMPED. From FY12 to FY14, 40 new employees were hired at JMC HQ; in contrast, 71 new employees were hired during FY16 alone. By FY21, about 53 percent of the current HQ JMC workforce (353 of 670 civilian employees) is projected to be eligible for retirement, said Norbert Herrera, JMC's deputy chief of staff for human resource management. With projected increases in attrition from FY17 to FY21 because of dramatic rises in retirement eligibility, it is critical for the organization to continue efforts to recruit, develop and shape the future workforce.

ONBOARDING A-GO-GO

AMPED Cohort IV classmates toured Crane Army Ammunition Activity in Crane, Indiana, in March 2016. The 24 new employees spent two days touring JMC production lines at the government-owned and -operated facility, and visiting the co-located Naval Support Activity Crane, accomplishing two of the onboarding program's key goals: learning what JMC as a whole does and learning the basics of ammunition. (Photo by Lori McFate, JMC)

With this in mind, said Herrera, the command set out in 2014 "to implement programs and practices that help us develop a highly trained, diverse, inclusive and adaptive workforce who embrace change and maintain a standard of excellence. This begins with efficient and effective onboarding of new employees."

JMC developed the AMPED program to create a positive first impression, acclimate new employees, shorten the time it takes for them to become productive members of the organization, and demonstrate commitment to their personal and professional development. Before AMPED, new employees would shadow their counterparts to learn their specific mission workload. But many new employees remained unaware of the various other missions and core competencies within the enterprise.

To bridge this knowledge gap among newer employees who were not yet acquainted with the breadth of the mission, JMC identified the fundamental competencies, such as team building, required for new employees to understand JMC's mission, vision, goals and objectives, and developed the AMPED curriculum.

STRATEGIC RESEARCH DRIVES COURSE CURRICULUM

Beginning in 2014, AMPED program managers conducted focus groups, interviews and surveys across several demographic groups at JMC: new employees, those in the middle of their careers, senior experts, supervisors and senior executives. The goal of these assessments was to identify the topics and elements that would most benefit new JMC employees. About 160 employees gave input in focus groups and interviews, and 400 surveys were collected from the workforce. The program managers also researched similar programs used in private industry and by other Army organizations to identify successful benchmarks and best practices.

This research pinpointed four main subjects that all new employees needed to know, regardless of position title, series or JMC assignment location. The topics were onboarding and acculturation; JMC 100-series; the language of ammunition; and common competencies. Within each main subject area, the AMPED program managers developed curriculum based on employee and supervisor feedback.

Onboarding and acculturation includes personnel policies, career management, workforce dignity and respect, personal image, business etiquette and how to be a cyberwarrior. The JMC 100-Series covers topics such as how JMC runs, lines of operation and core mission competencies, while the language of ammunition covers the life cycle and purpose of JMC commodities, from small-caliber bullets to large bombs. The final main subject covers competencies common to most workplaces: leader development, professional writing, staffing, team building, time management, conflict resolution and presentation skills.

The AMPED program is held semiannually, with classroom training half-days on Monday through Thursday for several weeks. The curriculum also includes travel to two JMC subordinate installations: a government-owned, contractor-operated facility and a government-owned, government-operated facility. The part-time class schedule allows new employees the time for onboarding training while still having enough time to be integrated with their respective teams and apply their new knowledge. AMPED classes can accommodate up to 25 students, which provides opportunities for effective group exercises and increased student engagement.

AMPED program managers are analyzing the program and constructing a new version of AMPED, to be released this fall, that will be exportable to subordinate installations across the JMC enterprise.

New JMC employees say they have found AMPED to be a refreshing change from the typical onboarding programs in place at other government civilian jobs. "Having transferred from a different command, I was blown away by how well-organized and passionate the facilitators were when discussing each and every topic," said Joseph Klunder, JMC execution inventory manager, who completed the AMPED program in 2016.

"New employees leave AMPED with a much better understanding of their expectations and with much more confidence and trust in the organization."

REFINING THE AMPED EXPERIENCE FOR EVERYONE

AMPED program managers strive for continuous improvement through the use of feedback and suggestions collected from surveys, after-action reviews and other forms of communication. The AMPED program relies heavily on qualitative and quantitative questions posed in program surveys that are collected at the conclusion of each module. Thus far, 111 new JMC employees have graduated from the AMPED program, and 97 percent gave the program a positive rating.

For AMPED program managers, the biggest lesson learned is to remain flexible. Each cohort includes a variety of personal, professional and military backgrounds, so it is important to canvass the audience before each session and adjust the course curriculum if necessary. For example, a cohort with more military experience might not need to spend as much time on military "greening" as a cohort in which very few participants have a military background.

Also, supervisor endorsement of the program is imperative. New employees need to commit to attending and participating in the entire program in order for it to have optimum benefit. Supervisors should encourage full attendance and work with employees to maintain a manageable workload during that time. Each new employee is also assigned a sponsor, typically a teammate who assists the new employee with issues such as orientation to the team. Sponsors of new employees should also stay in touch with the new employees throughout the program to gauge its effectiveness and receive employee feedback.

Another AMPED best practice is to strategically incorporate site visits, hands-on activities and games, in addition

to traditional classroom briefings and small-group discussions, throughout the program as both a check on learning and a relationship-building tool. Hands-on activities help engage employees and give them opportunities to better understand and apply the information that was taught.

AMPED program managers recognize that each employee learns best in a different way, and AMPED has been designed to accommodate various modes of learning. The goal is to provide foundational knowledge through an informative, comfortable and fun environment. Instructors facilitate games such as "Jeopardy!," sports that tie in with the season the class is held, and scavenger hunts throughout the JMC building. All games and exercises reinforce learning and provide team-building, relationship-building and networking opportunities.

The site visits allow students to see and experience the JMC core competencies of production, storage, distribution and demilitarization that were studied in the classroom setting. Incorporating fun checks on learning into the curriculum has paid dividends: In post-program surveys, students rave about their AMPED experiences and frequently name these nontraditional methods of instruction as their favorite parts of the program.

JUST THE BEGINNING OF CAREER DEVELOPMENT

One benefit of the vigorous training program is increased professional development and engagement for both new employees and their established co-workers. AMPED has encouraged a culture of continuous learning and knowledge sharing at JMC. Senior leaders, supervisors, sponsors, mentors, co-workers, peers and human resource professionals have volunteered to develop and instruct classes, conduct learning reinforcement activities and provide avenues for new employees to get to know the organization's leaders and experts.

The positive results are a strong motivator to pitch in, said Jim Seward, a JMC business transformation analyst who is also an AMPED instructor. "The program focuses on showing all employees where they fit into the enterprise mission and emphasizes to new employees how they are integrated into the organization." Whereas onboarding training in general tends to focus on one specific area without making the important connections among all parties, Seward noted, "new employees leave AMPED with a much better understanding of their expectations and with much more confidence and trust in the organization."

AMPED graduates have approached the program managers to inquire about opportunities to facilitate future classes, expressing a desire to "pay it forward" by offering the same expertise and passion AMPED facilitators showed them during their onboarding to welcome new employees to JMC.

"New and old employees alike will benefit from the AMPED program," said information technology specialist Joshua Thompson, an AMPED graduate who's now a facilitator. "First off, the networking alone from meeting new people is a great benefit, as is going to the various mission areas and site location visits to learn more about the JMC core competencies. I also got to speak in front of the class as a facilitator during the next session and help new employees identify more with the JMC cybersecurity mission. The experience from both sides was rewarding."

The program's emphasis on team building and networking has led to lasting relationships. Many cohorts still get together inside and outside of work to maintain the relationships and camaraderie fostered during onboarding. "AMPED was an invaluable experience that provided a strong foundation of knowledge. It helped me understand my role in the organization and how I contribute to the larger mission," said Sudan Abdur-Rahman, a general engineer who completed the program in 2016. "In addition, as a new employee who is not local to the JMC geographical area, the AMPED program provided me with a networking forum to build relationships and friendships that have carried outside of the work environment."

Cohort IV graduated from AMPED in March 2016, and its members, including Michelle Wells, still hold a monthly after-work social. "There was a positive and fun learning environment. Because of that, a number of us have kept up friendships over the last year. Those friendships also help at work: As a new employee, I know people in sections that normally I might not have met," said Wells, a JMC logistics management specialist.

Thus far, 111 new JMC employees have graduated from the AMPED program, and 97 percent gave the program a positive rating.

AMPED UP AND READY TO WORK

A recent AMPED cohort celebrated graduation in December 2016. Brig. Gen. Richard B. Dix, left, JMC commanding general, presented certificates to the graduates. The program's emphasis on networking and team building has created lasting social as well as professional connections among graduates. (Photo by Tony Lopez, JMC Public and Congressional Affairs)

Another member of Cohort IV echoed this sentiment. "Sometimes it's as simple as knowing the right person to ask the question. Working in the fast-paced environment of operations and planning, it is imperative to know where to go and who to ask," said Theresa Grindeland, a 2016 AMPED graduate and an ammunition operations program analyst.

CONCLUSION

"By taking an active interest in professional development when employees come to JMC, we are building a culture of engagement," said Michelle Timmerman, JMC personnel development and policy division chief. AMPED has proven successful in helping JMC not only build the bench as its workforce ages, but also in keeping employees and supervisors at all levels engaged and focused on career development and mission readiness.

"We anticipate this program will remain sustainable for new JMC employees, and have plans in place to offer program content to current employees" as a professional development opportunity to fill knowledge gaps, said Timmerman. "The program is not built or meant to be a 'one and done' approach. We intentionally developed it this way so that we would have the ability to mold and shape the program to meet current and emerging requirements for our workforce."

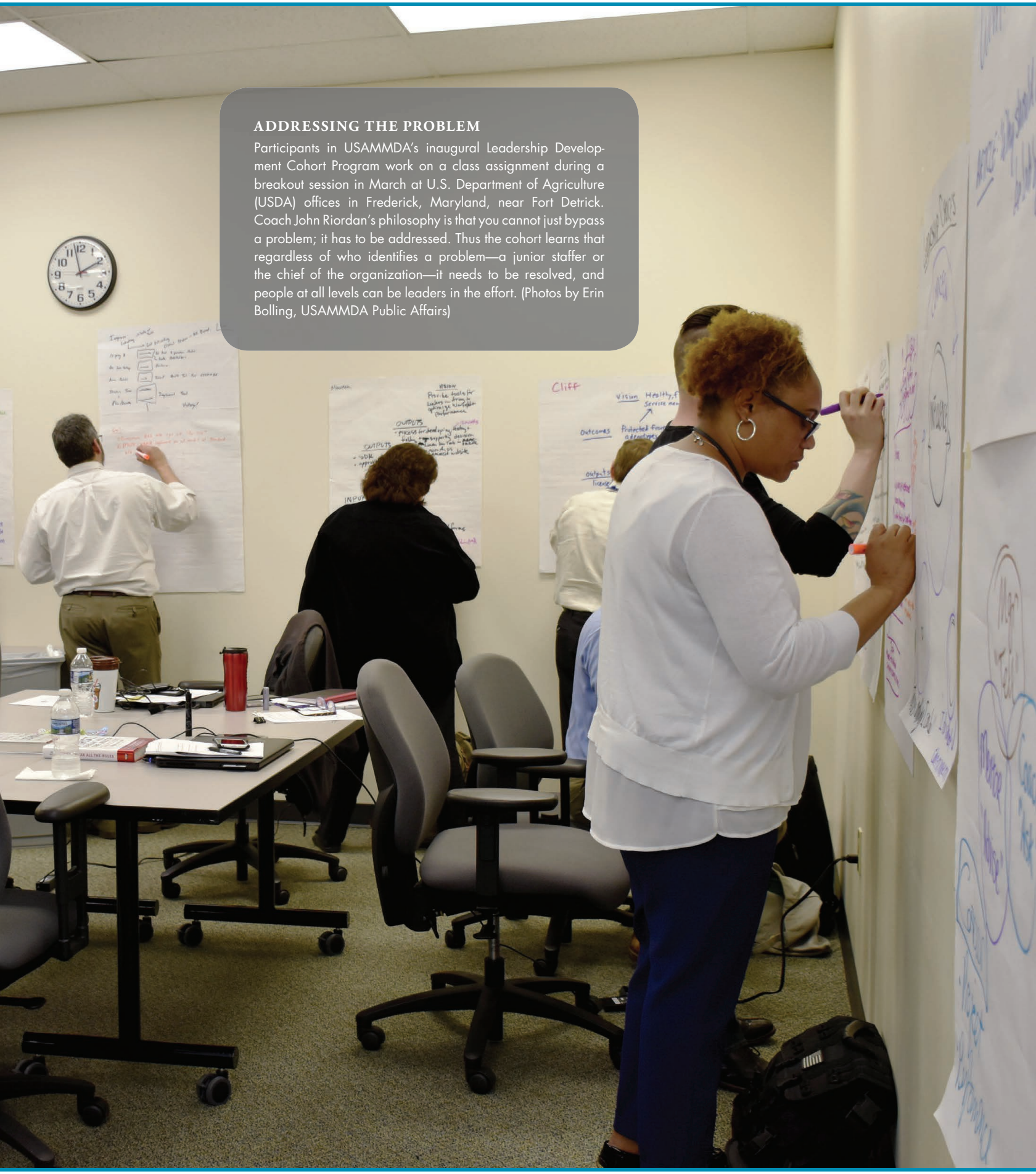
By the end of FY17, the goal is to implement the AMPED program across the JMC enterprise at JMC's outlying installations in 13 states. Several organizations—including the U.S. Army Materiel Command, JMC's parent command; and the U.S. Army Sustainment Command (ASC)—have adopted best practices from the AMPED program and have planned, implemented or improved similar programs for their organizations. AMPED program managers believe that their efforts can help sister commands such as ASC train and retain an engaged, informed workforce across the Army acquisition enterprise.

For more information, contact Erica Slattery at ***erica.l.slattery.civ@mail.mil*** *or Heather Tahja at* ***heather.m.tahja.civ@mail.mil****.*

MS. ERICA SLATTERY is a human resource specialist on the G-1 staff at JMC, Rock Island Arsenal, Illinois. She has 13 years of government service and has earned the Under Secretary of Defense (Comptroller) Financial Management Award. She has a Lean Six Sigma (LSS) green belt and is currently an LSS black belt candidate. She holds a B.A. in business administration from Augustana College.

MS. HEATHER TAHJA is a program specialist on the G-1 staff at JMC. She has eight years of government service and earned a Commander's Award for Civilian Service as well as a Beyond Peer Expectation Award. She holds a B.A. in mass communications from Western Illinois University.

MS. NICOLE KIRSCHMANN is a public affairs specialist at JMC. She holds an M.A. in teaching from Augusta University and a B.A. in English and sociology and a B.S. in psychology from Tulane University. She has 15 years of experience in education and training, including as a DOD contractor working for Embry-Riddle Aeronautical University in Germany.



ADDRESSING THE PROBLEM

Participants in USAMMDA's inaugural Leadership Development Cohort Program work on a class assignment during a breakout session in March at U.S. Department of Agriculture (USDA) offices in Frederick, Maryland, near Fort Detrick. Coach John Riordan's philosophy is that you cannot just bypass a problem; it has to be addressed. Thus the cohort learns that regardless of who identifies a problem—a junior staffer or the chief of the organization—it needs to be resolved, and people at all levels can be leaders in the effort. (Photos by Erin Bolling, USAMMDA Public Affairs)

Tailored Training

USAMMDA's highly specialized workforce needs training to match its mission. It's getting it, thanks to DAWDF funding.

by Ms. Kathleen L. Berst and Ms. Judy L. Holian

As the premier developer of world-class military medical capabilities, the U.S. Army Medical Materiel Development Activity (USAMMDA) at Fort Detrick, Maryland, is responsible for developing and delivering critical products for the nation's military forces. USAMMDA requires a particular type of workforce to accomplish this mission, with skills not only in acquisition but also in very specialized areas of medical product development. These highly skilled personnel enable USAMMDA to supply products that protect and preserve the lives of warfighters worldwide.

The products include drugs, vaccines, blood products, devices and medical support equipment designed to maximize the survival of casualties on the battlefield. USAMMDA's dedicated team focuses constantly on the timely delivery of new, affordable and sustainable capabilities.

Because of the variety of specialized knowledge and skills required for its mission, in 2014 USAMMDA implemented a multifaceted training program geared toward developing the workforce effectively in the key areas of technical and acquisition competency and leadership—and the results have been noteworthy. Given the financial constraints that exist throughout the federal government, USAMMDA has drawn on its creativity to provide the best training possible within a limited budget.

USAMMDA personnel possess distinct talents and areas of expertise that do not exist elsewhere in the acquisition enterprise. Most of its product and project managers have a scientific or engineering background in addition to the traditional business skill set often expected in these positions. USAMMDA personnel frequently interact with the U.S. Food and Drug Administration (FDA) and other regulatory agencies, clinical research entities and laboratories—again, not the typical lanes of the acquisition arena.

INVESTING IN KNOWLEDGE

Within USAMMDA's Regulatory Division, multiple staff members hold acquisition-coded positions because of their essential roles on integrated product teams for FDA-regulated products. Because USAMMDA's unique segment of the acquisition world is evolving continuously, it is important to

provide targeted, competency-based training to the team. Therefore, command leadership has sought various funding sources that allow USAMMDA to offer this specific coursework for its staff.

The Defense Acquisition Workforce Development Fund (DAWDF) has enabled USAMMDA to establish training in house to sustain and improve critical competencies in project management and regulatory affairs. DAWDF support has helped to develop USAMMDA personnel and prepare them to accomplish the mission. For example, Project Management Institute training has enabled more than 50 acquisition workforce members across the U.S. Army Medical Research and Materiel Command, USAMMDA's higher headquarters, to achieve Project Management Professional certification, in addition to receiving Regulatory Affairs Certificate Program training.

While competency training is important, however, it is not enough to ensure mission success. Leadership development remains vital in enabling USAMMDA team members to work effectively outside their program-specific sphere of influence.

The government has excellent leadership and development programs, but they can cost upward of $10,000 per person, which is simply out of USAMMDA's reach. Therefore, USAMMDA created its own program, leveraging internal resources and additional funding from DAWDF. Without DAWDF funds, USAMMDA's training council could not have funded any of the recent offerings from a leading nonprofit educational institute or other efforts, including USAMMDA's Leadership Development Cohort Program. Providing the cohort program in house has saved us a significant amount of money, compared with the cost of sending USAMMDA staff to an off-site, privately run program.

The Leadership Development Cohort Program comprises six sessions totaling eight full days. Tailored specifically to the unique needs of USAMMDA's workforce and mission, and facilitated by a professional leadership coach, the program is being delivered to civilian product managers, deputy directors and branch chiefs over the course of eight months. They meet one day per month and have assignments in between.

Topics are based on the executive core qualifications identified by the U.S. Office of Personnel Management, such as leading people, achieving results, leading change, business acumen and building coalitions and partnerships. Thus the program offers USAMMDA team members the opportunity to align their various talents more effectively to meet any challenge within the organization's unusual acquisition space. The focus is on distinguishing between managing and leading, to develop valuable skills that will help strengthen the organization.

What makes this program so effective is that the small group—26 participants in each cohort—moves through the training together. Members of the group support one another between meetings. There are assigned readings and books, TED Talks and various activities to complete before a scheduled session, and the camaraderie that comes from working on them together creates a positive atmosphere in the classroom.

TEACHING TO LEAD

Participants in the inaugural USAMMDA Leadership Development Cohort Program work through in-class assignments with coach John Riordan, center, in March at USDA offices in Frederick. Riordan frames the training in various scenarios for the group to analyze and discuss. His mantra is, "Be yourself with more skill."

DIRECT INTERACTION

Amy Brown, USAMMDA senior acquisition management liaison officer, receives feedback and guidance from Riordan on an in-class assignment for the Leadership Development Cohort Program. The complex, multifunctional nature of the organization's work calls for leadership development at all levels.

Heightening participants' engagement is the interaction of the group with the program coach, John Riordan. As a professional leadership instructor for nearly two decades, Riordan has been involved with the Excellence in Government Fellows and other government-based leadership programs. He connects with his clients quickly and guides each group by presenting real-world scenarios based on the specific work of the organization. His mantra, "Be yourself with more skill," is one of the reasons USAMMDA chose to contract him for this program.

USAMMDA's training council designed and structured the coursework to develop leadership capacity, starting with branch chiefs, deputy directors, product managers and selected nonmanagement staff members. The ultimate goal is to help everyone realize that they can contribute meaningfully on a daily basis, regardless of their pay grade, because the bottom line is that you do not have to be a senior staff member or a commander to be a leader.

With this emphasis on "leading at all levels," the cohort learns that when a problem arises, it needs to be resolved, whether the person confronting it is the most junior member of the staff or the one in charge. As the coach advocates, you cannot just walk by a problem; it has to be addressed—and that is the point of this program.

TANGIBLE RESULTS

USAMMDA has seen the results of its leadership training in practical ways. In one case, the positive effect was evident almost immediately in the work of two participants during a classroom exercise.

As part of their prework during a recent executive training course, Strategies for Conflict Resolution, students were asked to provide a case study to discuss in class. As it happened, two people from different USAMMDA divisions had been experiencing ongoing stress from a joint work problem for which they could not agree on a solution.

They decided to use this real-life situation as their case study for class, and they wrote the assignment together. Bringing the paper to class, they allowed the course instructor to act as facilitator, along with the other participants, to work through their conflict. The result was successful: The two students reached a positive resolution that carried over into their daily business interactions, to the ultimate benefit of USAMMDA's mission, which enlightened not only the two students but the entire class and the instructor.

As one of the two students involved said, "I really feel that the group setting was very beneficial in this case, because the other students—our peers—could remain neutral and objective, and they were able to offer helpful comments and suggestions. The conflict was not magically resolved, but we received some very valuable feedback that certainly helped to improve the situation."

Even the Leadership Development Cohort Program, as valuable as it is to the growth of USAMMDA's workforce, by itself may not be enough to fully cultivate the talents of the team within the organization's unique space. Therefore, USAMMDA augments the program with invited guests, who speak on a variety of pertinent topics, and continuously looks for opportunities to send staff members on details and developmental assignments to broaden their skills and knowledge base in other areas of the organization, both internal and external to USAMMDA.

Mentorship remains a valuable component of USAMMDA's training as well.

Once the members of this current cohort, made up of senior staff, complete the program, they will be asked to serve as mentors to the junior staff during the next program offering.

USAMMDA plans to rotate each year between a Leadership Development Cohort Program geared toward senior staff and one geared to junior staff. Thus the training will help to develop the leadership skills of junior staff so they can progress eventually into senior roles, which will help strengthen USAMMDA's bench and provide in-house candidates with the necessary skills for senior management positions.

CONCLUSION

USAMMDA understands the importance of talent management, and workforce development is a critical component of its strategic plan. The organization continues to formalize its training structure while building upon it.

The nature of the work requires multifunctional teams that must lead through influence, communicate effectively, and prevent, manage and resolve conflict. What USAMMDA does on a daily basis is so complicated that it requires many people to make that happen—it truly is a team effort. Therefore, ongoing leadership development at all levels is both beneficial and necessary.

Although it is important to make training opportunities available to staff members, it is equally imperative to have support at all levels of the command for this endeavor. The USAMMDA leadership team fully encourages the professional development of staff members, which helps put them at ease when they must take time away from their daily work to complete assigned training.

Col. William E. Geesey, USAMMDA's commander, remains a faithful advocate of the Leadership Development Cohort Program and has addressed the group at multiple sessions.

"The primary mission of USAMMDA is to support our warfighters with whatever they need, whenever they need it, so they can complete their assigned missions successfully," Geesey said. "This specific leadership training that we are providing to our USAMMDA team members will help us to accomplish our goal of protecting and preserving our military forces, which will benefit our entire nation in the end. It is certainly a win-win situation for all involved."

With the implementation of a thoughtfully crafted training program, USAMMDA has already realized benefits as participants practice their skills in leading through influence and in preventing and managing conflict. The leadership remains dedicated to attracting, developing and aligning talent within this unique acquisition workforce to improve our ability to protect and preserve the lives of those defending our nation.

FOR A BETTER UNDERSTANDING

USAMMDA's Leadership Development Cohort Program involves extensive reading and study between scheduled classes, and participants tackle many of the assignments as a group.

For more information on the work and mission of USAMMDA, go to ***http://www.usammda.army.mil****.*

MS. KATHLEEN L. BERST is deputy commander for acquisition at USAMMDA, responsible for oversight of five project management offices, one division and program support. She is currently completing an MBA from Hood College and holds a B.S. in molecular biology from Clarkson University. A member of the Army Acquisition Corps (AAC), she is Level III certified in program management. Additionally, Berst has achieved Project Management Professional certification and holds a Regulatory Affairs Certificate.

MS. JUDY L. HOLIAN is chief of USAMMDA's Office of Research and Technology Applications, responsible for establishing technology transfer and interagency agreements to enable the advancement of biomedical research in support of medical solutions for the warfighter. She holds a B.S. in microbiology from The Pennsylvania State University. She is Level II certified in program management and a Project Management Professional, as well as a member of the AAC.

THE VIEW FROM THE FOXHOLE

Rotational Assignment Program develops and retains talent across the security assistance workforce.

by Mr. Adam Genest and Ms. Carly Glenn

In Huntsville, Alabama, Nick Curry's bags were packed. He was enjoying a big send-off dinner with his wife, son, daughter, mother, stepfather and younger sisters. Curry promised to FaceTime often and said he would visit over spring break. He had only been away from his family for, at most, a week at a time, and being gone for six months would be a big adjustment. But he knew this was his chance to connect with the people and processes that shaped his daily work.

HELPING UNDERSTANDING FLOURISH

April Miller, left, Nick Curry, Freeman Nlandu and Jennifer Griffin enjoy the cherry blossoms outside the Taylor Building in Arlington, Virginia. The Rotational Assignment Program demonstrates the Army's commitment to employees' professional development while also expanding their knowledge of DOD's security cooperation mission. (Photos by Carly Glenn, DASA(DE&C))

Curry, a logistics management specialist with the U.S. Army Aviation and Missile Life Cycle Management Command (AMCOM) Security Assistance Management Division (SAMD), was on his way to start a six-month assignment through the Security Assistance Workforce Rotational Assignment Program. Managed by the deputy assistant secretary of the Army for defense exports and cooperation (DASA(DE&C)), the program provides government employees across the Army security assistance enterprise (ASAE) the opportunity to temporarily rotate to a different organization within the enterprise.

"My hope is that this will enhance the workforce's understanding of the Army's entire security assistance mission and how other organizations within the security assistance enterprise contribute to the success of the Army's security assistance program," stated DASA(DE&C) Ann Cataldo in a memo announcing the program.

Security assistance in DOD is a subset of security cooperation, which encompasses all DOD interactions with foreign defense and security establishments. These undertakings are an important tool in the execution of U.S. foreign policy, allowing the

U.S. to build allied and partner capacity, promote interoperability and share the burden of our global security responsibilities with partners and allies.

The scope of security assistance across DOD and within the Army is wide and deep. Under the guidance of the U.S. Department of State and oversight of the Defense Security Cooperation Agency (DSCA), DOD security assistance comprises a group of programs, authorized under Title 22 authorities, by which the United States provides defense articles (such as munitions, technology and sensitive data), military education and training and other defense-related services by grant, loan, credit, cash sale or lease to foreign partners and allies in furtherance of national policies and objectives.

BROADENING EXPERIENCE

RAP participants, from left, Freeman Nlandu, April Miller, Nick Curry and Jennifer Griffin all are working on six-month temporary assignments with the DASA(DE&C). They will return to their home organizations within the Army security assistance enterprise after completing the RAP.

The ASAE consists of approximately 3,000 personnel in dozens of organizations throughout HQDA; U.S. Army Materiel Command; U.S. Training and Doctrine Command; U.S. Army Medical Command; U.S. Army Corps of Engineers; and direct reporting units. Understanding the entire ASAE and all the processes, policies, funding sources and authorities cans be a challenge for even a seasoned professional. Subject matter experts rarely get an opportunity to see a different side of DOD security assistance, but they can better understand and appreciate how the pieces fit together by participating in the Rotational Assignment Program (RAP).

ASAE organizations create temporary positions for RAP, interested individuals apply, and selected participants are placed in assignments lasting between three and six months. Eighteen people are participating in the FY17 program; Curry, April Miller, Jennifer Griffin, Freeman Nlandu and Alisha Wade have been placed with DASA(DE&C).

With support from their leadership and the hosting organization, participants get out from behind their desks, away from their regular duties, and broaden their knowledge of security assistance. Griffin, like Curry a logistics management specialist with AMCOM SAMD, said that the opportunity to learn something new encouraged her to apply. "I've never worked in security assistance policy before. I'm getting on-the-job training in an entirely new discipline and get to take it back to my organization."

In addition to being an excellent personal broadening opportunity, the RAP allows participants to build relationships and open new lines of communication across the enterprise. "A lot of the time, we [AMCOM SAMD] don't know what goes on here [at DASA(DE&C)]," said Curry. "We're sending documents or information to what can seem like a black hole … wondering if they are open to communicating. Being here, seeing the need to communicate has been beneficial, and I have been able to reach back to my home organization with hot items, like a piece of critical information or an important contact within the organization." Miller added, "When we are developing an FMS [foreign military sales] case at our level, sometimes the process can seem a little slower than we might like. But with the connections I've developed at DASA(DE&C), I think we'll be able to move our cases along a little faster."

In a large, matrixed organization like ASAE, it can be difficult to convey the overall vision to personnel three or four layers removed from HQDA. "There is a gap," said Nlandu, branch chief for U.S. European Command and U.S. Africa Command regional operations with the U.S. Army Security Assistance Training Management Organization. "There are the senior leaders and then the person in the foxhole. When you are in the foxhole, you want to know what to do and who to call. [The RAP] is about letting the people in the foxhole know how their work contributes to the big picture."

The RAP selection process is competitive; organizations send their best representatives to embed in other positions within the enterprise. Participants tend to be problem-solvers, seeking to apply what they learn through the program to make their home organization more effective.

According to David Williams of DASA(DE&C), who manages the RAP, the initiative is a key element in retaining high-quality and talented employees, in addition to building capacity and encouraging communication across the enterprise. "Speaking with folks who have come to DASA(DE&C), they all said that 'This has opened my eyes. My batteries are now recharged.' I like to think that RAP enhances a person's annual assessment and future growth opportunities. Individuals who are interested in enhancing their career are the ones who apply."

When asked if the RAP helps retain talent, Griffin, Curry, Miller and Nlandu all said yes. The program makes employees feel valued and invested in by the Army, they explained, and it encourages a sense of loyalty—not only to their home organizations, but to the mission of the enterprise as a whole.

Feeling valued is important, but does it outweigh the challenges presented when a loved one leaves family and friends for six months? Curry said he would "like to think she [his wife] is falling apart, but she's holding it down pretty well. She is a strong woman." Neighbors, friends and family have come together to form a strong support system, and Curry has been able to visit home three times in the last three months, to attend a father-daughter dance, take time for spring break and see his son inducted into the National Elementary Honor Society.

What about the home organization that loses a full-time employee for multiple months? Leadership sometimes fears the loss will be permanent, creating hesitation in letting personnel apply. "I prepared my guys before I left and talked to them about participatory leadership," said Nlandu. "My absence has not resulted in any gap, and I'm continuing to help them while I'm here, just in a different role."

Curry said he feels like a "SAMD liaison officer" between DASA(DE&C) and AMCOM. He has been able to reach back to his home organization to make sure they are providing the right information to DASA(DE&C) and to answer their financial questions.

Through participation in the RAP, the home organization gains special insight into what is happening within other parts of the ASAE, and the sponsoring organization gains a different perspective from each participant. All involved parties benefit, and leadership currently not involved with the program may want to consider the value RAP can bring to their organization.

"What is so important when you're in my job [at the U.S. Army Security Assistance Training Management Organization] is to implement senior leaders' visions," said Nlandu. "Coming here and just being exposed to the security cooperation enterprise is exciting. … It gives you the opportunity to understand the vision and requirements, and when you go back, you can implement the vision. You can support your leaders from your foxhole."

The success of the program shows in its rapid growth. Established only three years ago, the RAP has grown every year: More agencies and commands are encouraging their employees to apply and volunteering to sponsor participants from other organizations. This year, the program expanded outside of the Army, with the participation of DSCA.

When they return to their home organization, Miller, Curry, Nlandu, Griffin and Wade will take with them a greater understanding of the ASAE, stronger relationships with those who shape the policy of their everyday work and a renewed sense of dedication. Through the support of their families, friends and leadership, they will have gained an opportunity to grow professionally, and their organizations will be more tightly linked to the enterprise as a whole.

For more information on the RAP, go to the DASA(DE&C) Training SharePoint page at ***https://spcs3.kc.army.mil/asaalt/zn/DEC_Training/SitePages/Home.aspx****.*

MR. ADAM GENEST is a strategic communications contractor for Booz Allen Hamilton Inc., providing contract support to DASA(DE&C) in Arlington, Virginia. He holds a master of forensic science from George Washington University and a B.A. in homeland security and emergency preparedness from Virginia Commonwealth University.

MS. CARLY GLENN is a functional analyst with General Dynamics Information Technology, providing contract support to DASA(DE&C). She is pursuing a master of strategic public relations at George Washington University and holds a B.A. in communication from Virginia Tech.

MR. LAWRENCE J. NEVINS

COMMAND/ORGANIZATION:
Project Manager for Precision Fires Rocket and Missile Systems, Program Executive Office for Missiles and Space

TITLE:
Assistant product manager, field artillery launchers

YEARS OF SERVICE IN WORKFORCE: 7

YEARS OF SERVICE IN MILITARY: 5.5 years active duty, U.S. Air Force; 10 years, U.S. Air Force Reserve

DAWIA CERTIFICATIONS:
Level III in program management

EDUCATION:
B.S. in electrical engineering, Brigham Young University

AWARDS:
Army Acquisition Executive's Excellence in Leadership Award, Support Professional of the Year; Acquisition Hero Award from the Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology

Relationships are key to his success

Assistant Product Manager Lawrence Nevins has been in one spot for the past several years. And that's a good thing. Since late 2009, he's been the assistant product manager for field artillery launchers in the Project Office for Precision Fires Rocket and Missile Systems, responsible for the M270A1 launcher fleet. Based on the Soldier feedback he's heard, Nevins noted, "It's a system that is well-liked and has proven to be extremely effective in executing its mission."

Nevins is charged with supporting the product manager and project manager in budgeting and executing efforts that modernize the M270A1 weapon system, ensuring that it is a viable weapon platform that meets ongoing warfighter requirements. His seven years in the role "gives me a deep working knowledge of the weapon system and the people and processes needed to maintain its high performance in the field," he said, "and my longevity in this position has helped the project office maintain a relatively constant course."

Like many, Nevins finds that the biggest challenge in his work is shifting budgets. "We start a project with a certain budget, but that often gets cut, forcing us to re-plan midstream," he said. "The solution to that is to prioritize, and we often end up getting rid of the lower-priority features. No one likes to hear it, but we are often forced to reduce capabilities."

Nevins' roots in acquisition date back more than 20 years. He joined the Program Executive Office for Missiles and Space (PEO MS) after two decades of product management in the private sector, where he developed commercial products as well as U.S. and foreign military products for defense contractors and computer and telecommunication companies. Additionally, he has roughly 15 years of Air Force experience: 5 1/2 years on

ROCKET LAUNCHER MAN

Nevins stands before an M270A1 field artillery launcher. "It's a system that is well-liked and has proven to be extremely effective in executing its mission," he said. (Photo courtesy of Lawrence Nevins)

active duty and the remainder as a reservist. "With the combination of prior military acquisition experience and knowledge of industry practices in product development, I am able to provide a balanced view to my team members, peers and senior management to help accomplish the organization's goals effectively and efficiently," he said.

He spelled out what he's learned from his previous assignments. "My initial military acquisition background and subsequent industry experiences taught me the importance of genuinely valuing the people who work with you and for you. A team will accomplish much more when the team members know their leader values their opinion and effort."

Several of his supervisors, military and civilian, understood how to delegate without micromanaging and how to encourage professional growth through new tasks, he noted. "I am grateful to them for challenging and coaching me," he said. In his first assignment in acquisition, as a second lieutenant in the Air Force, Lt. Col. Michael Hurt "was a very good mentor. He was knowledgeable and shared that knowledge with those of us just beginning in acquisition. We were given responsibility and guidance, then allowed to execute the task at hand. His willingness to allow young officers to accomplish tasks without micromanaging enabled me to learn and grow my knowledge quickly. And on those few occasions when I made a mistake, he would use those as learning opportunities rather than disciplinary events." Nevins also praised an industry supervisor, James Whatley, for his mentoring. "He demonstrated effective ways to direct effort while coaching his subordinates to success. I was challenged with new assignments that I hadn't previously experienced, and he would be there as a resource, or coach, when I got to a point where I needed help."

Nevins was one of two people to receive the 2016 Army Acquisition Executive's Excellence in Leadership Awards in the Support Professional of the Year category. Nevins "demonstrated outstanding system engineering skills overseeing development and sustainment of the M270A1 launcher," said Barry Pike, the program executive officer, who nominated Nevins for the award, noting the support he provided to the Improved Armored Cab (IAC) and Fire Control System – Update (FCS-U) programs. "His superb leadership and dedication to the mission resulted in the successful design and production of new IAC and FCS-U prototypes for the Army." Receiving the award "was very humbling," said Nevins, "and at the same time, it's very gratifying to see our efforts recognized."

When he's not at work, Nevins pursues his interest in portrait and landscape photography and provides career counseling services. He's also active in a handful of projects at his church. "All of my activities, at work and away from work, are about building relationships," he said. "Relationships are the key to achieving any goal."

Looking to move along a path similar to Nevins? Slow down, he advised. "Don't be in too much of a hurry to move up. Allow yourself time to thoroughly understand and execute your current assignment before moving to another." He also recommended obtaining career field certifications—and holding on to the course materials. "The classes contain very good information, but it will be forgotten if you are not using it. Don't forget to revisit the material when you begin a new phase of a program, to refresh your knowledge."

—MS. SUSAN L. FOLLETT

ON THE MOVE

1

2

OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS AND TECHNOLOGY

1: ACQUISITION COMMUNITY WELCOMES NEW MILITARY DEPUTY

Lt. Gen. Paul A. Ostrowski has been named the principal military deputy (PMILDEP) to the assistant secretary of the Army for acquisition, logistics and technology (ASA(ALT)) and director of the Army Acquisition Corps (AAC). He succeeds **Lt. Gen. Michael E. Williamson**, who is retiring.

Ostrowski took the reins in April after serving as deputy commanding general for support, Combined Security Transition Command – Afghanistan, Operation Freedom's Sentinel. His recent assignments include deputy for acquisition and systems management in the Office of the ASA(ALT)); program executive officer (PEO) for Soldier; executive officer to the commander, U.S. Special Operations Command (USSOCOM); and PEO for special programs at USSOCOM. The U.S. Senate confirmed Ostrowski's promotion to lieutenant general on March 27.

Ostrowski holds an M.S. in national resource strategy from the National Defense University, an M.S. in systems acquisition management from the Naval Postgraduate School and a B.S. in geography from the United States Military Academy at West Point.

2: WILLIAMSON STEPS DOWN AFTER 34 YEARS

Lt. Gen. Michael E. Williamson retired from the Army June 1 after more than 34 years of military service, the last three as the PMILDEP to the ASA(ALT); Army director for acquisition career management (DACM); and director of the AAC.

Williamson's acquisition career began in April 1991 as a senior military software analyst at NATO's military headquarters in Mons, Belgium, and encompassed a variety of program management assignments at the product, project, deputy PEO and PEO levels.

His legacy as the Army's top acquisition officer includes several achievements that have enhanced the Army Acquisition Workforce (AAW), including establishing a centralized selection board for civilian product and project directors; implementing the AAW Human Capital Strategic Plan, a five-year strategy for AAW readiness; and creating the Army Acquisition Leader Preparation Course (AALPC) for centralized selection list selectees who are preparing for leadership roles in a contracting command or as program managers. (See article on the AALPC, "Owning Your Battlespace," Page 98.)

While there have been a few specific focus areas during his tenure, Williamson noted during an interview before his retirement the importance

of looking at the AAW holistically. "You can't just target one piece. You have to make sure that you're looking at the entire enterprise."

Williamson added that no single program or initiative makes our workforce better or is more important than another: "It's the combination of all of these things." (U.S. Army photo by Sgt. Alicia Brand)

3: ARMY'S FIRST TOP ACQUISITION NCO RETIRES

Sgt. Maj. Rory L. Malloy, the first sergeant major to the PMILDEP, ASA(ALT), is retiring after more than 32 years of military service. His retirement ceremony was May 4 at Fort Campbell, Kentucky, with **Lt. Gen. Joseph Anderson**, deputy chief of staff, G-3/5/7, officiating. In attendance was Malloy's wife, **Deborah Malloy**.

Malloy reported for active duty in January 1985 at Fort Benning, Georgia. During his Army career, Malloy served in every infantry leadership position, from team leader to sergeant major, including drill sergeant, ROTC senior instructor, operations sergeant, battalion command sergeant major (CSM), brigade combat team CSM and as division CSM during three deployments to Operation Iraqi Freedom. He also served as the CSM for the Joint Readiness Training Center and Fort Polk, Louisiana, and the 20th commandant (and second enlisted commandant) of the U.S. Army Sergeants Major Academy (USASMA) at Fort Bliss, Texas.

Malloy became Army acquisition's first top NCO in November 2014. During each year of his tenure, he orchestrated the annual Army Acquisition Executive Awards to honor and recognize the best of the AAW. He also developed and produced a highly acclaimed monthly sergeant major update on Army acquisition programs. His most enduring contributions focused on promoting continuous equipment modernization, training and Soldier force protection capabilities. Malloy was instrumental in fielding critical technologies to counter urgent and emerging threats for Soldiers and their combatant commanders.

Malloy received an MBA, summa cum laude, in human resource management from Trident University International, and a B.A., cum laude, in business management from Excelsior University.

His awards and decorations include the Defense Superior Service Medal, the Legion of Merit (three oak leaf clusters (OLCs)), Bronze Star Medal for Valor, Bronze Star Medal (three OLCs), the Meritorious Service Medal (three OLCs), the Army Commendation Medal (three OLCs), Army Achievement Medal (six OLCs), Good Conduct Medal (10th award), National Defense Service Medal (one bronze star), Global War on Terrorism Expeditionary Medal, Global War on Terrorism Service Medal, Iraq Campaign Medal (three bronze stars), Overseas Service Ribbon (Numeral 4), NCO Professional Development Ribbon (Numeral 4), Master Parachutist Badge, Combat Infantryman Badge, Expert Infantryman Badge, Drill Sergeant Identification Badge, Pathfinder Badge, Air Assault Badge, the Italian Parachutist Badge and the Army Staff Identification Badge. (U.S. Army photo by Heidi Meyer, 101st Airborne Division and Fort Campbell)

PEO FOR MISSILES AND SPACE

4: DPEO M&S PINS ON FIRST STAR

Brig. Gen. Robert Rasch Jr. took the oath of office from **Lt. Gen. Paul A. Ostrowski**, principal military deputy to the assistant secretary of the Army for acquisition, logistics and technology, on May 8 after being promoted. Holding the Bible was his wife, **Shawndell Rasch**. The ceremony was at Redstone Arsenal, Alabama. Rasch is the deputy program executive officer for missiles and space. (Photo by Bryan Bacon, Redstone Arsenal)

PEO FOR ASSEMBLED CHEMICAL WEAPONS ALTERNATIVES

1: PROGRAM EXECUTIVE OFFICER FOR ACWA RETIRES

Conrad F. Whyne, program executive officer for assembled chemical weapons alternatives (ACWA) since March 2012, has retired after a career spanning 29 years as an Army civilian and 10 years as an Army Chemical Corps officer and Acquisition Corps officer. His retirement ceremony was held April 26 at the Edgewood Area of Aberdeen Proving Ground, Maryland.

As PEO, Whyne was responsible for ensuring the safe construction, testing and operation of demilitarization facilities for chemical weapons stockpiles at the U.S. Army Pueblo Chemical Depot, Colorado, and Blue Grass Army Depot, Kentucky.

Joseph J. Novad has succeeded Whyne in an acting capacity. Previously PEO ACWA's technical director, Novad joined the organization in 1997.

PEO FOR COMBAT SUPPORT AND COMBAT SERVICE SUPPORT

2: NEW DPEO FOR CS&CSS

Ross R. Guckert was promoted to the Senior Executive Service and installed as the deputy program executive officer (DPEO) for combat support and combat service support (CS&CSS) in a ceremony March 24 at Detroit Arsenal, Warren, Michigan. Hosting the ceremony was **then-Maj. Gen. Paul A. Ostrowski** in his capacity as special assistant to the director of the Army staff.

In his new job, Guckert supports the program executive officer in leading the development, integration, testing, acquisition, fielding, sustainment and modernization of more than 250 diverse programs of record. Before this assignment, he served as the acting DPEO for aviation and the acting DPEO for Soldier.

Guckert holds an M.A. in engineering management from George Washington University and a B.A. in electrical engineering from the University of Pittsburgh. He is a graduate of the Industrial College of the Armed Forces (now the Dwight D. Eisenhower School for National Security and Resource Strategy), the Army's Competitive Development Group, Harvard University's Leadership Series and Senior Executive Fellows Program, Defense Acquisition University's Advanced Program Management Program and the Executive Leadership Program at the University of Virginia's Darden School of Business. He is Level III certified in program management, science and technology management and engineering, and Level I certified in test and evaluation. He is a member of the Army Acquisition Corps. (Photo by Greg Pici, U.S. Army Garrison (USAG) – Detroit Arsenal Multimedia Visual Information Center)

3: APEO RECOGNIZED FOR MERITORIOUS SERVICE

Scott J. Davis, program executive officer for CS&CSS, presented **Mike Cadieux** with the Meritorious Civilian Service Award for his service as acting DPEO from September 2014 to December 2016, during a ceremony March 8 at Detroit Arsenal, Warren, Michigan. Cadieux currently serves as the assistant program executive officer (APEO) for strategic operations.

He spearheaded multiple efforts to improve organizational capability and critical thinking in acquisition. This included leading PEO staff in shaping new processes for configuration steering boards that could be conducted at the Acquisition Category II and III levels—an approach successfully used on at least five programs—and leading more than 20 "whiteboard" sessions that brought together stakeholders from across the organization to shape acquisition strategies. (Photo courtesy of USAG-Detroit Arsenal Multimedia Visual Information Center)

U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND

4: ECBC DIRECTOR SAYS GOOD-BYE AFTER 14-YEAR TENURE

Joseph Corriveau, Ph.D., director of the U.S. Army Edgewood Chemical Biological Center (ECBC), bid farewell to his colleagues in a ceremony and open house May 4 at the

ECBC Conference Center at Aberdeen Proving Ground (APG), Maryland. Corriveau, who had been director since January 2015, joined ECBC in June 2003 as the deputy director of research and technology (R&T). He is now the director of the U.S. Army Corps of Engineers' Cold Regions Research and Engineering Laboratory in Hanover, New Hampshire.

Maj. Gen. Cedric T. Wins, commanding general of ECBC's parent command, the U.S. Army Research, Development and Engineering Command (RDECOM), praised Corriveau's tenure for making ECBC, RDECOM and DOD better, most recently through his central role of working with allied nations to keep coalition Soldiers safe from the chemical weapons threat posed by the Islamic State group.

Replacing Corriveau in an acting capacity is **Eric L. Moore**, Ph.D., ECBC R&T director.

"One of the wonderful things about our mission is its tremendous purpose," Corriveau told ECBC employees. "Our nation, our Soldiers, really need us. The world is a dangerous place; you are making it a safer place. Take care of one another and stay safe." (Photo courtesy of ECBC)

5: RDECOM EXECUTIVE DEPUTY TO CG RETIRES AFTER 39 YEARS

Jyuji D. Hewitt, executive deputy to the commanding general of RDECOM, retired from civilian service at a ceremony April 27 at APG, ending a career that began at APG in 1979 when he was a second lieutenant.

Before assuming his position at RDECOM, Hewitt served as executive director for support in the Office of Security Cooperation – Iraq in Baghdad. He was also the deputy to the commander and executive director for ammunition for the U.S. Army Joint Munitions Command (JMC) at Rock Island Arsenal, Illinois. The Army selected him for the Senior Executive Service in January 2007.

During his time at RDECOM, Hewitt was involved with the science, technology, engineering and mathematics (STEM) program. (See "Building a Love for Math and Science," Page 70.) "For the Army to continue to give our Soldiers a technological edge, we need a workforce that's always leaning forward, and in order to do that, you need a workforce from a STEM environment, as well as a passion for your work," said Hewitt.

Hewitt was commissioned into the Army as a second lieutenant in 1978 through the ROTC program and retired as a colonel in 2006. During his military career, he served as deputy commander and later chief of staff at JMC. He also served as deputy chief of staff for the U.S. Army Materiel Command, and as commanding officer of the McAlester Army Ammunition Plant in McAlester, Oklahoma.

His awards and decorations include the Chairman of the Joint Chiefs of Staff Joint Distinguished Civilian Service Award, Meritorious Presidential Rank Award and the Superior Civilian Service Award.

Hewitt earned three M.S. degrees: in strategic studies from the U.S. Army War College; in nuclear physics from the University of New Hampshire; and in systems management from the Florida Institute of Technology. He also holds a B.S. in chemistry from the University of Maine. (Photo by Tom Faulkner, RDECOM)

U.S. ARMY COMMUNICATIONS-ELECTRONICS RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

1: CERDEC DIRECTOR RETIRES

The Army honored outgoing U.S. Army Communications-Electronics Research, Development and Engineering Center (CERDEC) Director **Henry J. Muller Jr.** for nearly 33 years of federal service during a retirement ceremony March 31 at Aberdeen Proving Ground, Maryland.

Maj. Gen. Cedric T. Wins, commanding general of the U.S. Army Research, Development and Engineering Command (RDECOM), presented Muller with the Decoration for Exceptional Civilian Service, a certificate for Outstanding Service in the Army Senior Executive Service (SES), an SES flag and service pin, an Army Certificate of Retirement, a Certificate of Appreciation and an American flag.

"The Army has asked a lot of Henry Muller, and every time they've asked him to step up, Henry has been able to come through," Wins said. "The Army is certainly a better place for you having served here, and certainly the folks who've been under your charge are better at what they do as a result of your leadership and stewardship."

Muller entered civil service in 1984 as an engineer and joined the SES in 2008 as director of CERDEC's Space and Terrestrial Communications Directorate. In 2012, he was named director of CERDEC's Intelligence and Information Warfare Directorate, where he served until being named the center's overall director in 2015.

"This is the closing chapter of what has been a challenging, fulfilling and at times stressful but extremely gratifying career," Muller told the audience at the March 31 ceremony. "If ever there was a team sport, this is it. … You are truly a hardworking, hard-charging, dedicated workforce that envisioned, developed and delivered capabilities never before imagined by our Soldiers." (Photos by Conrad Johnson, RDECOM)

2: ARMY TAPS NEW ACTING CERDEC DIRECTOR

The Army has selected **Donald A. Reago Jr.**, Ph.D., top, to serve as CERDEC acting director for 120 days, as the search begins to fill the position vacated by the retirement of **Henry J. Muller Jr.**

Reago, who was selected for the SES in May 2014, previously served as director of the CERDEC Night Vision and Electronic Sensors Directorate at Fort Belvoir, Virginia. During Reago's detail as acting director, which began April 1, **Michael J. Grove**, Ph.D., bottom, will run the directorate.

Reago is an internationally recognized authority in night vision, countermine and sensor technologies, and has served on numerous joint, national and international coordinating activities. He is currently the chairman of the Office of the Secretary of Defense Sensors Community of Interest and the Army representative on the NATO Sensors and Electronics Technology Panel.

3: CERDEC'S CP&ID GETS NEW DIRECTOR

Chris Manning has been detailed through the Army's Senior Enterprise Talent Management Program to the position of acting director for CERDEC's Command, Power and Integration Directorate (CP&ID).

The CP&ID director is responsible for planning and executing the Army's science and technology investments in mission command; power generation; positioning, navigation and timing; and quick reaction and prototyping technology.

Manning has spent 20 years in federal service, most recently as chief of CP&ID'S Prototyping, Integration and Testing Division. Previously, he was the deputy chief of staff at the PEO for Command, Control and Communications – Tactical and deployed to Afghanistan in support of Operation Enduring Freedom as the deputy director of forward operations for the assistant secretary of the Army for acquisition, logistics and technology.

Manning held numerous military leadership assignments that culminated in his commanding the 578th Signal Company in Iraq to support Operation Iraqi Freedom and his subsequent assignment to the Army Acquisition Corps.

Manning holds an M.S. in engineering (management of technology) from the University of Pennsylvania and a B.S. in electrical engineering from the Honors College of Michigan State University. He's Level III certified in program management and engineering and is a graduate of the Program Managers Course and the Defense Acquisition University's Senior Service College Fellowship.

U.S. ARMY CORPS OF ENGINEERS

4: ERDC DIRECTOR RETIRES

Jeffery P. Holland, Ph.D., former director of the U.S. Army Engineer Research and Development Center (ERDC) and chief scientist of the U.S. Army Corps of Engineers (USACE), retired in March after 37 years of service. Besides serving as ERDC director, Holland had served as deputy director and as director of research and development (R&D) for USACE.

Holland led the development and deployment of several pioneering, award-winning force protection technologies, spearheaded research to reduce risk from natural disasters, and ensured that ERDC and its people were continually able to find innovative solutions to global security challenges.

5: NEW ERDC DIRECTOR NAMED

David W. Pittman, Ph.D., was named director of ERDC and USACE chief scientist in an announcement March 16 from **Lt. Gen. Todd T. Semonite**, chief of engineers and commanding general of USACE. Pittman succeeds **Jeffery P. Holland**, Ph.D., who retired in March.

"To say that I am humbled by the privilege to serve in this capacity is an understatement. This organization has been so very good to me, and I am proud to lead the professional, dedicated men and women who make ERDC truly great," Pittman said.

In addition to his responsibilities as ERDC director and USACE chief scientist, Pittman serves as director of R&D for USACE. In this role, he is responsible for creating and shaping policy and performing R&D strategic planning, direction and oversight for military and civil works programs.

Pittman holds a Ph.D. in civil engineering from the University of Texas at Austin, an M.S. in civil engineering from Mississippi State University and a B.S., summa cum laude, in civil engineering, also from Mississippi State. He is a recipient of the Presidential Rank Award (Meritorious), the Federal Laboratory Consortium Lab Director of the Year Award and the Joint Meritorious Civilian Service Award.


3


4


5

JOINT TACTICAL NETWORKING CENTER

ASSISTANT PRODUCT MANAGER ENDS THREE-YEAR TOUR AT JTNC

Jeff Mercer, director, Joint Tactical Networking Center (JTNC), presented the JTNC Director coin to **Lt. Col. Brett Bateman** on April 20, commemorating his three-year assignment as the assistant product manager for Mid-Tier Waveforms and the Mobile User Objective System Waveform, within the Project Manager for Tactical Radios. In July, Bateman reports to the Program Management Division, Office of the Program Manager, Saudi Arabian National Guard, as the chief of ground acquisition and fielding branch/deputy. (Photo by Ashley Buzzell, G2 Software Systems)

OFFICE OF THE CHIEF OF STAFF, ARMY GENERAL OFFICER ANNOUNCEMENTS

The following general officers were promoted to the rank indicated below in April:

Maj. Gen. Patricia A. Frost, director of cyber, Office of the Deputy Chief of Staff, G-3/5/7, U.S. Army, Washington.

Maj. Gen. Robert L. Marion, deputy for acquisition and systems management, ASA(ALT), Washington.

The following general officers were placed on the retired list effective June 1:

Lt. Gen. Robert S. Ferrell completed more than 38 years of service, culminating as the chief information officer/G-6, Office of the Secretary of the Army, Washington.

Lt. Gen. Michael E. Williamson completed more than 34 years of service, culminating as principal military deputy, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology; Army director for acquisition career management; and director of the Army Acquisition Corps, Washington.

SES ANNOUNCEMENTS

The Civilian Senior Leader Management Office is pleased to announce that the acting secretary of the Army has approved:

SES REASSIGNMENT

Stacey K. Hirata, chief, Installation Support Community of Practice, U.S. Army Corps of Engineers (USACE), Washington, Tier 1, to chief, Military Programs Integration Division, USACE, Washington, Tier 2, effective June 17.

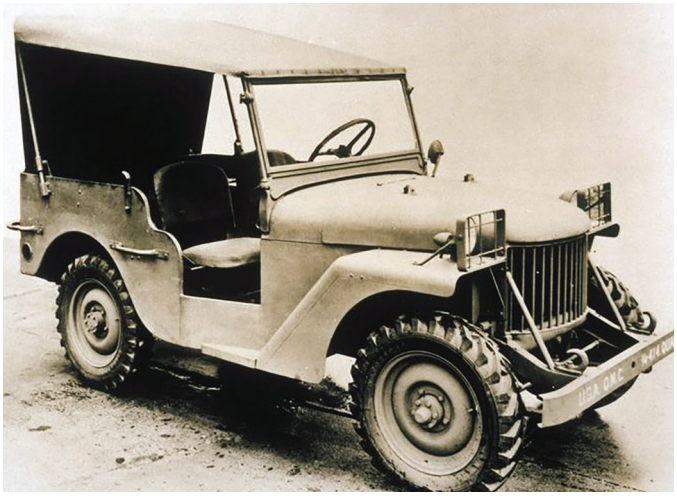
SES APPOINTMENT

Patrick H. Mason to deputy program executive officer for aviation, Redstone Arsenal, Alabama, Tier 1, effective May 14.

THEN & NOW
1941, 1981, 1985, 2007, 2017

NOT YOUR DADDY'S (Or Granddaddy's) TACTICAL VEHICLE

JLTV, Army's and Marines' newest wheeled asset, follows in the venerable tracks of Jeep, HMMWV.



DOORS NOT INCLUDED

Willys-Overland was awarded the contract for the 1940 Willys Quad Original Pilot, the Jeep's precursor, which began production in 1941. The vehicle underwent countless modifications and upgrades, and remained in service for the next 44 years. (Photo courtesy of Fiat Chrysler Automobiles)

Over the past few decades, the character of military conflict has changed substantially as "front lines" and "rear areas" have blurred into a single, full-spectrum operational environment. That increasing complexity is reflected in the tactical vehicles that commanders need to address the spectrum of operations. When the Army looked to replace the venerable Jeep, the July-August 1981 issue of RD&A magazine, Army AL&T's predecessor, described the new vehicle it sought to acquire, the High-Mobility Multipurpose Wheeled Vehicle (HMMWV), this way:

"The HMMWV will be diesel powered and have an automatic transmission. It will carry a 2,500-pound payload, have a cruising range of 300 miles, accelerate from 0 to 30 MPH within 6 to 8 seconds and achieve a maximum speed to 60 MPH. Since the HMMWV will be operated in forward areas, it will feature run-flat tires and ballistic protection up to 16-grain fragments traveling at 425 meters per second, as well as explosion-proof fuel tanks for some models. The vehicle will use off-the-shelf civilian hardware and military standard parts wherever possible."

It was, essentially, a better Jeep. There was nothing in that description about blast resistance or networking. It would have been hard to imagine a tactical network such as today's in 1981. Nor was any consideration given to improvised explosive devices (IEDs). Contrast that with the new Joint Light Tactical Vehicle (JLTV), which is currently in low-rate initial production.

BIGGER, STRONGER, SAFER

Leaders from the U.S. Army Training and Doctrine Command tested a production model of the JLTV, far right, at Joint Base Langley-Eustis, Virginia, in May. The JLTV bridges the capability gaps in protection, performance and payload of the HMMWV on the left. (Photo by U.S. Air Force Staff Sgt. Teresa J. Cleveland)

JLTV is an Army-led, joint-service program designed to replace a portion of each service's light tactical wheeled vehicle fleets while closing mobility and protection gaps. The intent is to provide protected, sustained, networked mobility for warfighters and payloads across the full range of military operations.

PROGRESSIVE CAPABILITY

During World War II, the Jeep was considered the workhorse for logistical and support tasks. The early vehicles were used for laying cable and hauling logs, and as firefighting pumpers, field ambulances and tractors. However, the vehicle didn't include protective armor, a radio, seatbelts—or even doors. After the war, the Jeep went through many modifications and upgrades and remained in service for the next 44 years.

The HMMWV was fielded in 1985, a couple of years later than anticipated back in 1981. Since then, HMMWVs have been used as troop carriers, command vehicles, ambulances, for psychological operations and as weapon platforms. In the early 2000s, HMMWVs faced an entirely new threat in the post-9/11 wars in Afghanistan and Iraq—the IED—and they proved vulnerable. DOD responded with up-armoring and the Mine Resistant Ambush Protected (MRAP) vehicle was born, designed specifically to resist and deflect IED explosions.

JLTV gives the current warfighter significantly more protection against multiple threats while increasing mobility, payload and firepower, something that Soldiers and Marines from past conflicts could envision only in their wildest dreams.

"The JLTV has been designed to keep pace with the fast-changing nature of today's battlefield," said Dave Diersen, vice president and general manager of Joint Programs at Oshkosh Defense, which won the JLTV contract. Diersen added that JLTV offers "a leap forward in performance and capability that can only come from a vehicle that is purpose-built for a spectrum of light vehicle missions."

The JLTV has two variants, to cover the requirements of both the Army and Marine Corps, and can be transported by a range of lift assets, including rotary-wing aircraft. It can traverse rugged and dangerous terrain, including urban areas, while providing built-in and supplemental armor against direct fire and IED threats. The JLTV features advanced networking; it is wired for current and future command, control, communications, computers, intelligence, surveillance and reconnaissance systems.

JLTV was built purposely for the Army's tactical network and designed to have MRAP-like protection, but also to improve fuel efficiency, increase payload and provide greater maintainability, reliability and performance—plus the potential for continuous improvement to meet future mission requirements.

The first production vehicles are intended to serve as assets for JLTV's performance and operational testing programs. Roughly 40 vehicles have been delivered to test sites thus far. They will undergo complete reliability, transportability, survivability, network and other testing to verify the production vehicles' ability to satisfy program requirements. The most important outcome of this testing is to ensure that Soldiers can work effectively with the JLTV and all of its integrated equipment.

As the Jeep and HMMWV did on past battlefields, JLTV no doubt will face challenges of 21st-century military operations that the Army and DOD can scarcely imagine today, as well as provide a much-needed tactical vehicle capability for the Army and Marine Corps that doesn't compromise among payload, mobility, performance or protection.

For more information on JLTV, go to ***http://www.peocscss.army.mil/****.*

For a historical tour of Army AL&T over the past 56 years, go to the Army AL&T magazine archives at ***http://asc.army.mil/web/magazine/alt-magazine-archive/****.*

—MR. ROBERT E. COULTAS

Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology)

As of 06/05/17

Ms. Steffanie Easter

(ACTING)
ASA(ALT)
AAE & SPE
SAAL-ZA

LTG Aundre Piggee

Deputy Chief of Staff
G-4 Logistics

Mr. Gary Wang (acting)

Chief Information Officer
G-6

LTG Paul Ostrowski

Principal Military Deputy DACM
CIO
SAAL-ZB

Mr. Christopher Lowman (acting)

Principal Deputy
SAAL-ZX

VACANT

Sergeant Major
SAAL-ZB

Mr. Steven Karl (acting)

DASA Acquisition Policy & Logistics
SAAL-ZL

Ms. Ann Cataldo

DASA Defense Exports & Cooperation
SAAL-ZN

Mr. John Daniels

DASA Plans, Programs & Resources
SAAL-ZR

Mr. James Shields

PEO Ammunition

BG Thomas Todd III

PEO Aviation

Mr. Gary Martin

PEO C3T

Mr. Scott Davis

PEO CS & CSS

Dr. Thomas Russell

DASA Research & Technology
SAAL-ZT

BG Michael Hoskin (acting)

DASA Procurement
SAAL-ZP

MG Bob Marion

Deputy for Acquisition & Systems Management
SAAL-ZS

BG Patrick Burden

PEO EIS

MG David Bassett

PEO GCS

MG Kirk Vollmecke

PEO IEW&S

Mr. Barry Pike

PEO Missiles & Space

Mr. Doug Wiltsie

Director Rapid Capabilities Office
SAAL-SSI

BG Brian Cummings

PEO Soldier

BG William Cole

PEO STRI

Mr. Doug Bryce

JPEO CBD

Mr. Joseph Novad (acting)

PEO ACWA

Mr. Craig Spisak

Director USAASC

MG Barbara Holcomb

Commander MRMC*

* Deputy for Medical Systems. Receives acquisition oversight but reports to the Surgeon General

ARMY ACQUISITION, LOGISTICS & TECHNOLOGY
ISSN 0892-8657

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

ASC.ARMY.MIL

HEADQUARTERS DEPARTMENT OF THE ARMY | PB 70-17-03 | APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

"If organizations don't have enough people who know how to be game changers, they may be able to execute their current strategy, but they will not be agile, able to adapt. And if you want to grow as an organization and thrive, you need to be able to change and innovate."

Linda A. Hill
Wallace Brett Donham Professor of Business Administration at Harvard Business School

Page 76

PUBLISHED BY

U.S. ARMY

UNITED STATES ARMY
USAASC
ACQUISITION SUPPORT CENTER