SHAPING ARMY ACQUISITION

WIDE REACH, BIG PAYOFF
USAMRDC's new partnership works to find and fund future technology

TACTICAL AI: NOT A CASTLE IN THE SKY
PEO C3T's pathfinder project will pave way for future tactical AI enablers

COOL UNDER PRESSURE
A senior U.S. diplomat sets sights on keeping things cool in the Arctic

DOUGLAS R. BUSH
Acting Assistant Secretary of the Army for
Acquisition, Logistics and Technology (ASA(ALT))

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:

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ARMY AL&T

SPRING 2021

ON THE COVER
Using the Federal
Acquisition Regulation,
other-transaction authority
agreements, middle tier
of acquisition and other
vehicles, and relying
upon partners in industry
and academia, the Army
Acquisition Workforce is
shaping Army acquisition.

FEATURE ARTICLES

CRITICAL THINKING

COMMENTARY

WORKFORCE

2020
Major General Harold J. "Harry" Greene
Awards for Acquisition Writing

Also included with this issue: the 2020 Major General Harold J. 'Harry' Greene Awards for Acquisition Writing.

From the Editor-in-Chief

When Michelangelo was asked about the creation of his masterpiece of Renaissance sculpture, David, the great Italian sculptor, painter, architect and poet of the High Renaissance formally known as Michelangelo di Lodovico Buonarroti Simoni, said that he did not carve the statue. "The sculpture is already complete within the marble block, before I start my work. It is already there, I just have to chisel away the superfluous material."

Now, I know it's a leap, but the same can be said of the acquisition process. The acquisition battlefield is strewn with obstacles—regulations, laws, policies—that can obscure the goal. All were created with the best of intentions, but when viewed in their totality, it's much like Michelangelo chipping away at the marble: The right process is there if you can free it from its impediments. The result is our version of the David, a system that provides the support our Soldiers need on the battlefield.

This issue focuses on "Shaping Acquisition" and how our Army Acquisition Workforce members figure out how to use the existing processes and chip away obstacles to deliver world-class products. Take, for example, the new Excalibur (M982A1) 155 mm extended range guided artillery shell ("Precision Success, Page 58). The team at the Joint Program Executive Office for Armaments and Ammunition and the U.S. Army Combat Capabilities Development Command – Armaments Center figured out a way to create a round that almost doubles its range, from 40 km (25 miles) to 70 km (43.5 miles). As a former artillery guy, I think that's astounding! And accuracy? With GPS and inertial navigation, there is little doubt that it will strike its target and the enemy will never see it coming.

Ever get into a vehicle with all your gear on and realize humans were not considered when the thing was built? Or the system is so complex, again, because a human was not in the equation? Well, that should be a thing of the past with the work on Soldier-centered design, putting Soldiers in the middle of the development loop to make sure they can actually make the stuff do what it's supposed to. See the article by Dr. Pam Savage-Knepshield and crew, "Soldier-Centered Agile," Page 23, and find out how the magic is made.

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Although we have world-class facilities and personnel, we haven't cornered the market on good ideas or processes—yet. To that end, we have articles on how we are partnering with firms to scout for technology and encourage investments in new companies with promising research. At the same time we are working with academia, industry and DOD to develop a best-practices acquisition playbook for program managers to consult and tailor to their needs. Somewhere in all that rubble are the product and process we were looking for!

Bottom line, there is a little Michelangelo in all of us. We just need to take the time to remove the clutter and our ideas will materialize. If, like Michelangelo, you have ideas, comments or a story you would like to release from the marble of your mind, please contact us at **ArmyALT@ mail.mil**. Now you can reach any of our authors and editors via the new Army AL&T contact page (**https:// asc.army.mil/web/contact-alt/**). As always, we look forward to hearing from you.

Nelson McCouch III
Editor-in-Chief

A GLOBAL FORCE
Professionalism, hard work and thoughtful execution are what Soldiers expect of the acquisition workforce. That, in addition to materiel, is exactly what the workforce delivered during the pandemic and now the transition of administrations. (Graphic by U.S. Army Acquisition Support Center)

ARMY RESILIENCE

Even during a global pandemic, our military and civilian professionals get the job done no matter how daunting the challenge.

by Lt. Gen. Robert L. Marion

As I write this, I am honored to be serving as the acting assistant secretary of the Army for acquisition, logistics and technology. This privilege has also been accorded to my Navy and Air Force counterparts since passage of the National Defense Authorization Act for Fiscal Year 2017. The law as it applies to the Army states:

"In the event of a vacancy in the position of Assistant Secretary of the Army for Acquisition, Logistics, and Technology [ASA(ALT)], the Principal Military Deputy may serve as Acting Assistant Secretary for a period of not more than one year."

In my first communication to members of the workforce as the acting ASA(ALT), I expressed my appreciation for their professionalism and hard work in developing and delivering materiel to our Army and the joint force. Even during a global pandemic, our military and civilian professionals have demonstrated their resilience in getting the job done no matter how daunting the challenge.

I also asked that each of us, as we execute our daily responsibilities, stay focused on two important factors in obtaining successful outcomes:

- Meeting commitments.

- Being a great teammate.

In the acquisition business, meeting our commitments is crucial. Our warfighters depend on us to deliver a capability, i.e., a radio, tank, helicopter, on a specific date to a specific location. In fact, the entire Army depends on us. When a program is delayed by six months or even three months, there is a tidal wave felt throughout the Army. That is why it is so important to identify and find solutions to potential problems, and not just press the easy button. The onus to exhaust all options is on the organization responsible, and I ask everyone who is facing this dilemma to think creatively. What can we do to keep this program on schedule?

I have often said that when we put a triangle on a chart to meet a materiel need, the entirety of the Army rallies around that triangle, and the DOTMLPF (doctrine, organization, training, materiel, leadership and education, personnel and facilities) process launches. Does current doctrine address the materiel need, or must new doctrine be written? Is a better organizational structure needed? Do we need to adjust training to better prepare our forces for this new capability? Will the right personnel be in the right positions when the equipment is delivered? All kinds of decisions are factored into and executed according to that triangle on the chart.

It is important for everyone at every level of our enterprise to recognize that, when we put a triangle

on a chart, we are going to meet that commitment.

The second factor, being a great teammate, recognizes the importance of openness, honesty and transparency in dealing with others. We must do all we can individually to help our partners, teams, organizations and the Army succeed. Of course, there are times when we may disagree on a particular course of action, so speak up, don't give up or give in. Winston Churchill once said, "No idea is so outlandish that it should not be considered." Healthy discourse often leads to better outcomes, so express your opinions and share your thoughts. We have a lot of work to do, and no one has a monopoly on good ideas.

It is also important to know and respect boundaries of authority. Each person in an organization fills a critical role. In order to optimize operational effectiveness, it is imperative to know and use all of your decision space while maintaining awareness and respecting that of others.

As you go about your daily work, always remember that YOU are a valued member of the Army Acquisition Corps, the larger acquisition workforce and the Army team. I believe firmly that when we treat each other with dignity and respect—when we take care of each and every person in our more than 43,000-member workforce— we will accomplish great things for our Army and the Soldiers we serve.

HEADS-UP

Lt. Gen. Marion tries on an Integrated Visual Augmentation System (IVAS) Capability Set 2 Heads-Up Display during a June 2020 visit to the Program Executive Office for Soldier's Project Manager IVAS. (Photo courtesy of PEO Soldier)

THANK YOU, DR. JETTE

Let me take this opportunity to congratulate Dr. Bruce D. Jette on his leadership and many achievements as ASA(ALT) and Army acquisition executive from January 2018 to January 2021. He served with distinction and worked tirelessly to create a more effective acquisition system that meets current, emerging and long-term operational needs in a timely manner.

Dr. Jette was often referred to as a Soldier, a scholar, a scientist and a dedicated public servant. Each by itself is a fitting tribute. For many of us, he was also a visionary in that he had a clear perspective on what the future Army could be like. We are fortunate that during his time with us, he was instrumental in setting us on the right path.

On behalf of the entire Army acquisition community, I extend all good wishes to Dr. Jette, his wife, Cathy, and their wonderful family for many years of health and happiness. May our paths cross often.

ASSESSING INTEROPERABILITY

Brig. Gen. Joel Tyler, right, commanding general of the Joint Modernization Command, explains capabilities to Dr. Bruce D. Jette, former ASA(ALT), in Hohenfels, Germany, in April 2018. (Photo by Staff Sgt. Kalie Frantz, 55th Combat Camera)

REACHING OUT

Lt. Gen. Marion speaks to Army Acquisition Corps students attending the Naval Postgraduate School about leadership, workforce imperatives and Army modernization in July 2020. He urged the students to study, ask questions and learn. (Photo courtesy of ASA(ALT))

ACQUISITION CHECKPOINT

| Through the change of administration, DOD is expected to keep a steady course.

by Margaret C. Roth

In a transition between presidents who could hardly be a sharper study in political contrast, the outlook for Army acquisition is not one of dramatic change.

Perhaps surprisingly but understandably, given the limited time the Biden administration has to complete the first major step in imprinting its priorities, the federal budget for fiscal 2022, the newly installed DOD leadership is focusing its attention on a few high-visibility initiatives, including the new presidentially driven China Task Force, with the mission of identifying vulnerabilities in the defense industry and U.S. materiel from reliance on Chinese funding and supply; support for the COVID vaccination and prevention effort; and a push to prioritize air and missile defense modernization.

Just when the White House will release the new administration's first budget has become a political issue in itself. Whatever the date, the defense budget is expected to remain flat under the multitrillion-dollar pressure of the coronavirus pandemic.

U.S. military spending in coming years needs to focus on its preparedness to counter threats from China and Russia, particularly China, Pentagon leadership asserts. In the continuous balancing act of force structure growth, training, equipping and modernization, that means "continued investments in joint force readiness and force modernization, along with accelerated investments in artificial intelligence, machine learning, and other advanced technologies," according to written testimony submitted by Secretary of Defense Lloyd J. Austin III to the Senate Armed Services Committee as part of the confirmation process. For the Army specifically, it means "continued investments in mobility, logistics and force protection for Ground Combat Teams," among other priorities.

Across the services, the Pentagon also is likely to continue its "shift in technology development away from traditional acquisition approaches and toward other transaction authority agreements," according to an analysis by the Center for Strategic and International Studies (CSIS), a prominent Washington think tank, noting the 712 percent increase in defense other-transaction obligations between fiscal years 2015 and 2019. "DOD has shifted toward implementing and understanding the impact of these reforms rather than pursuing additional reform efforts," states the analysis, "Defense Acquisition in the Biden Administration," by Rhys McCormick, an associate fellow with CSIS's Defense-Industrial Initiatives Group.

This shift in direction is likely to continue, McCormick concluded. "In the immediate future, it is more likely that the Biden administration will make incremental

ON THE SCENE
President Joe Biden walks with Secretary of Defense Lloyd J. Austin III, left, Army Gen. Mark A. Milley, chairman of the Joint Chiefs of Staff, center right, and Vice President Kamala Harris at the Pentagon on Feb. 10. (Photo by Lisa Ferdinando, Office of the Secretary of Defense Public Affairs)

improvements and tweaks to the efforts that were started in previous administrations, rather than the wholescale reform seen in recent years," including expanded efforts in rapid prototyping and experimentation. "The biggest change in priorities between administrations is likely to be how the Biden administration uses the acquisition system to achieve its domestic policy goals, largely focused around Biden's initiatives to increase 'Made in America,' combat climate change, and achieve socioeconomic changes," McCormick wrote. He noted that DOD accounts for nearly half of all federal acquisitions, and that in the 2019 fiscal year, defense spending on green products totaled $30.8 billion, suggesting that these two major White House initiatives will have significant implications for defense acquisition.

IN THE LEAD
The Pentagon's new senior leadership began to take shape immediately after President Joe Biden's swearing-in as the 46th president of the United States. Secretary of Defense Austin received quick Senate confirmation on Jan. 22 and was sworn in at the Pentagon that same day. A graduate of the United States Military Academy at West Point, Austin served 41 years in uniform, retiring as a four-star general after three years as commander of U.S. Central Command.

Deputy Secretary of Defense Kathleen H. Hicks was confirmed Feb. 8 and sworn in the next day. Hicks comes to the deputy secretary's job after serving as the senior vice president and Henry A. Kissinger Chair at CSIS. She served in Defense Department policy offices during the Obama administration, including as principal deputy undersecretary of defense for policy and deputy undersecretary of defense for strategy, plans and forces.

As DOD's de facto chief operating officer, Hicks bears the frontline responsibility of translating strategy into day-to-day programming and budgeting, modernization and reform.

Just who the permanent leadership will be in Army acquisition was not certain as this issue of Army AL&T went to press.

> **"Acquisition of services and software remain challenging, and implementing sound cybersecurity throughout the acquisition system and the weapon systems it produces is a major need."**

President Biden had not yet sent nominations to the Senate for the positions of assistant secretary of the Army for acquisition, logistics and technology (ASA(ALT)) or undersecretary of defense for acquisition and sustainment. Nor had he named a secretary or undersecretary of the Army. But his transition team had named interim officials to fill key posts, including many in acquisition, as of Jan. 20. (See sidebar, "Keeping the Gears Going.")

"This transition team was really focused on having people in place on day one that didn't require confirmation," said Terry Gerton, president and CEO of the National Academy of Public Administration, in a discussion of the transition process Jan. 24 on the news program "Government Matters." "So they're already up and rolling inside those departments and agencies."

Lt. Gen. Robert L. Marion, principal military deputy to the ASA(ALT), took on the additional duties of the ASA(ALT) and principal deputy to the ASA(ALT) on an acting basis, while Rebecca E. Weirick, the deputy assistant secretary of the Army (DASA) for procurement, assumed the duties of Army acquisition executive as well. Brig. Gen. Anthony Potts, program executive officer for Soldier, temporarily took on the duties of principal military deputy to the ASA(ALT).

Since then, a new principal deputy has joined the ASA(ALT) team, as of March 8: Douglas R. Bush, a graduate of West Point who has served in a variety of staff positions on Capitol Hill. As of this writing, he serves as acting ASA(ALT) and the official performing the duties of the Army acquisition executive.

All six DASAs, the deputy for acquisition and systems management, the chief systems engineer and chief technology officer remain in those jobs.

KEEPING THE GEARS GOING

These are the transition team members the Biden administration has placed in senior Army and acquisition-related positions. All of those at the assistant secretary level and higher would need Senate confirmation to assume permanent status. As of Army AL&T's publication date, appointees requiring Senate confirmation have not been announced.

Undersecretary of defense for acquisition and sustainment (acting): Stacy A. Cummings, principal deputy assistant secretary of defense for acquisition.

Assistant secretary of defense for acquisition (acting): Dyke Weatherington, deputy assistant secretary of defense for strategic, space and intelligence systems.

Assistant secretary of defense for sustainment (acting): Paul Cramer, principal deputy assistant secretary of defense for sustainment (installations).

Secretary of the Army (acting): John Whitley, assistant secretary of the Army (financial management and comptroller).

Undersecretary of the Army (acting): Christopher Lowman, assistant deputy chief of staff, G-3/5/7; formerly deputy assistant secretary of the Army (DASA) for acquisition policy and logistics and then acting principal deputy ASA(ALT).

ASA(ALT) (acting): Douglas R. Bush, who also is the official serving in the capacity of the Army acquisition executive.

NO SHARP TURNS

Judging from the responses that Austin and Hicks gave to policy questions put to them as part of the Senate confirmation process, the Pentagon for which they are now responsible is fully intent on continuing progress made by the previous administrations in modernization of materiel; creative use of the expanded variety of acquisition approaches Congress has made available to program

managers in recent years' defense authorization acts—other-transaction, mid-tier acquisition, Section 2373 authority (to purchase experimental supplies necessary for experimental or test purposes) and others—and management of human capital to match the right talent to the right task at the right time.

Asked for his perspective on the new Adaptive Acquisition Framework that has evolved from new tools authorized by Congress, Austin replied in written testimony to the Senate Armed Services Committee that "the Adaptive Acquisition Framework implements the following tenets: (a) Empower program managers (PMs); (b) Simplify acquisition policy; (c) Employ tailored acquisition approaches; (d) Conduct data driven analysis; (e) Actively manage risk; and (f) Emphasize product support and sustainment," all objectives Austin pledged to support.

Furthermore, he stated that DOD needs to go further, taking advantage of rapid prototyping and expanded access to new partners in industry, to field new capabilities faster and develop more nontraditional partners with prospects for new defense capability. In particular, Austin told the Senate committee, "Acquisition of services and software remain challenging and implementing sound cybersecurity throughout the acquisition system and the weapon systems it produces is a major need. … In implementing these important authorities, we must balance the absolute need to secure our systems with the impact to cost, schedule and performance in implementing these measures."

Another top priority for Austin in acquisition is developing the acquisition workforce, he said. That includes tackling what he called the "technical and cultural challenge" of risk management—working

SECDEF SPEAKS
Secretary of Defense Lloyd J. Austin III participates in a Black History Month virtual engagement on Feb. 26 with high school students from Fort Knox and Fort Campbell, Kentucky, high schools. (Photo by Lisa Ferdinando, Office of the Secretary of Defense Public Affairs)

AUSTIN TAKES THE HELM
Thomas Muir, director of Washington Headquarters Services at DOD, swears in Lloyd J. Austin III as secretary of defense at the Pentagon on Jan. 22. Holding the Bible is the junior military assistant to the secretary of defense, Marine Corps Lt. Col. Caleb Hyatt. (Photo by Lisa Ferdinando, Office of the Secretary of Defense Public Affairs)

with acquisition and sustainment and research and engineering leadership in the Office of the Secretary of Defense and in the military services "to ensure risk is understood and that the acquisition workforce is encouraged to manage risk effectively."

Asked where responsibility would fall for ensuring that acquisition programs deliver promised capabilities to the end user on time and on budget, Austin responded that he would rely on a collaborative relationship of the secretary of defense, the undersecretary of defense for acquisition and sustainment, the service acquisition executives and the undersecretary of defense for research and engineering and would himself bear ultimate responsibility.

"Problems with acquisition can arise from many factors, including overly ambitious requirements, immature technologies, and poor planning and/or execution by government or contractor teams. ... When there are failures, we should learn from them, identify root causes, and move on from the program if a better alternative can be identified."

On the issue of unrealistic, unfeasible, unstable and unaffordable requirements, Austin was asked what best practices the department can employ to generate realistic and feasible requirements, particularly

HICKS SWORN IN
Secretary of Defense Lloyd J. Austin III, right, swears in Dr. Kathleen H. Hicks as deputy secretary of defense on Feb. 9 at the Pentagon. (Photo by Staff Sgt. Jack Sanders, U.S. Air Force)

> **"This transition team was really focused on having people in place on day one that didn't require confirmation."**

in sophisticated, rapidly evolving technical areas, and given that software increasingly defines the capability.

"Dynamic approaches to requirements generation in a mission engineering context, as well as insights from prototypes, experiments and pilots aligned with the department's modernization priorities and the National Defense Strategy, should continuously shape requirements and designs," Austin stated. He singled out "these approaches that actively engage users, and allow rapid iterative insertion of emerging technologies."

CONCLUSION
While some think of the presidential transition period as the first 100 days or so, it's really just the beginning, said Loren Dejonge Schulman, vice president of research at the Partnership for Public Service, in a discussion with Terry Gerton, president and CEO of the National

Academy of Public Administration, on "Government Matters."

"Realistically, transition will go on for the rest of the year," Schulman said. Historically, it has taken at least this long to get all the appointees in place.

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 MG 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.

WIDE REACH, BIG PAYOFF

| USAMRDC's new partnership works to find and fund future technology.

by Ramin A. Khalili

For Corey Ritter, it's almost like a homecoming of sorts—a chance to fuse the past and present. Sitting in his office in northwest Chicago, in a building just a few miles west of Lake Michigan, Ritter can not only see what the future of military medicine looks like—he is, in fact, one of a select group of people helping to directly shape that future via a new initiative to partner federal agencies with cutting-edge private companies.

"I was an Army brat as a kid and then, later, an infantry officer for eight years," said Ritter, a veteran who was deployed twice between 2010 and 2013, before transitioning to the private sector in 2016. "In Afghanistan I saw, in action, the health care technologies that were saving lives." That experience is now playing a major role in the future of the U.S. Army Medical Research and Development Command (USAMRDC)—an entity that serves as the Army's medical materiel developer and, also, further maintains responsibility for medical research, development and acquisition. As an associate with ARCH Venture Partners—a global venture capital firm that both creates and provides investments for new companies focused on physical and life-sciences research—Ritter and the larger ARCH team are spearheading a new internal program dedicated to spotting ascendant scientific technologies for the firm's corporate partners. As a result of that effort, USAMRDC is now partnering with ARCH to identify new and potentially game-changing medical devices and treatments for U.S. warfighters. For USAMRDC, it's the first-ever foray into such a pairing; and as such holds substantial—and as yet untapped—potential.

"We're looking for breakthrough innovations, and we're trying to create category-leading companies," said Ritter, noting that ARCH's myriad funding efforts—worth $4.5 billion total—have helped start more than 250 companies since the firm's inception 35 years ago.

"We think there's a good overlap between the kinds of companies we're working with and Department of Defense needs regarding traumatic brain injury, post-traumatic stress and the optimization of human performance."

"We're looking for companies that have a significantly better solution to an important problem, who then go on to lead that category."

A NEW VENTURE

The USAMRDC partnership with venture capital companies is still a burgeoning effort—the pairing with ARCH is less than a year old—but on a larger scale, it represents the command's desire to quickly find, fund and procure the types of technologies required to keep U.S. Soldiers safe on the seemingly ever-changing battlefield of the future; a place defined as much by potential location as by the technology (and the technological knowhow) of a given adversary. Such corporate efforts are chiefly routed through the Medical Technology Enterprise Consortium (MTEC), a powerful USAMRDC partner that aims to accelerate the development of revolutionary medical solutions to meet the needs of U.S. military personnel and veterans. In a unique way—and in an almost parallel manner—MTEC has a reach that rivals ARCH's own.

For Jill Sorensen, the chief operating officer for MTEC, focusing on such a vast array of military medical requirements, especially in an era of fast-moving technological landscapes, requires near-constant, round-the-clock attention. "We're living in the realm of the unmet medical need, [and] so the question is—how do we accelerate filling that gap?" said Sorensen,

noting the contemporary need to identify both immediate and potential medical concerns, and their accompanying solutions, as quickly as possible. "A term that we've been using to explain this is 'readiness,' or in this context, 'commercial readiness.' "

SHARED VISION

That MTEC's own priorities would align so cleanly with the USAMRDC's (i.e., a keen focus on Soldier readiness) is to be expected. A nonprofit corporation comprising a vast stable of private, academic and not-for-profit organizations, MTEC is a 501(c)(3) biomedical technology consortium collaborating with USAMRDC under an other-transaction authority agreement, a mechanism that allows consortium members and government program managers to hold open discussions throughout the solicitation phase. That capability, in turn, enables the rapid exchange of information among government entities, private technology developers and funding partners, which ultimately facilitates partnerships and paves the way for innovation. At the end of 2020, MTEC boasted a roster of more than 460 such members. Simply put, once they get their hands around a prototype-ready innovation, MTEC members have the connections required to bring that product to market.

What makes this partnership so unique, however, is the manner in which these

IN DEPTH
Medical personnel from Regional Health Command – Pacific use virtual health capabilities to treat a simulated patient during Joint Warfighting Assessment April 23 to May 10 in Yakima, Washington. ARCH provides more in-depth examinations of those chosen technologies for USAMRDC leaders. (Photo by Flavia Hulsey, Regional Health Command – Pacific)

SCOUTING REPORT

Like a scout in baseball, the team at ARCH looks for up-and-coming medical technologies that are then nurtured and coached with the hopes they'll one day be ready for the big leagues. (Getty Images)

ideas are submitted to MTEC in the first place. In short, ARCH performs what can be described as "technology scouting." Using its decadeslong involvement and familiarity in the worlds of oncology, infectious diseases and gene sequencing (among other areas) to provide potential candidates for review. To employ a simple sports analogy, Ritter and the team at ARCH act as high-tech baseball scouts—industry veterans charged with spotting up-and-coming young players who are then, in turn, nurtured and coached with the hope of future success. It's a unique comparison, but one that Sorensen doesn't shy away from.

"They say this work is a contact sport because you need to see the detail—and so I think it's a fair analogy," she said. "We describe technology and teams as important components of success."

"We're helping USAMRDC and MTEC with finding new opportunities and evaluating technical landscapes, and then evaluating the entrepreneurial activity in those areas," she explained.

GAME CHANGERS

ARCH certainly knows the territory well. The firm has a decadeslong track record of searching for up-and-coming technological innovations at places like universities and national labs; efforts that inexorably paved the way for key personal connections and additional partnerships. It's this kind of ear-to-the-ground approach that helped ARCH identify and invest in then-nascent California-based Illumina Inc. in the late 1990s. That firm has since achieved notoriety for driving down the cost of human genome sequencing—from hundreds

LEADING THE PACK
Soldiers assigned to the Womack Army Medical Center warehouse at Fort Bragg, North Carolina, prepare crates of supplies to support the COVID-19 testing site on the installation. USAMRDC and ARCH are teaming up to identify new and potentially game-changing medical devices and treatments for U.S. warfighters. (Photo by Twana Atkinson, Womack Army Medical Center)

of millions of dollars to, currently, just $1,000 per human genome.

In specific terms, the technology scouting process as it pertains to USAMRDC is relatively simple. First, ARCH provides a series of monthly updates—or, to continue the previous sports analogy, "scouting reports"—to the MTEC team. "They have multiple sets of eyes and ears," Sorensen said of ARCH's value in this first step alone. Those monthly reports notably stretch across a number of key interest areas, covering topics pertinent to each individual USAMRDC Joint Program Committee—topics like trauma care and infectious disease, among others.

The reports are shared with USAMRDC leadership, who pick the specific technologies or concepts they'd like to pursue. ARCH then stands ready to provide deeper, more in-depth looks at those chosen technologies before leaders make their final decisions. In fact, they've recently provided USAMRDC leaders with in-depth reports on new technologies designed to combat COVID-19. Finally, once a choice has been made, the MTEC team, led by Research Program Director Dr. Lauren Palestrini, begins the process of pairing the creators of the chosen technology with one (or two or three, if needed) of MTEC's many partner organizations to help guide that fledgling technological

The USAMRDC partnership with venture capital companies is still a burgeoning effort, but on a larger scale it represents the command's desire to quickly find, fund and procure the types of technologies required to keep U.S. Soldiers safe on the seemingly ever-changing battlefield of the future.

innovation to market. Procurement for military use then naturally follows.

"We want to get to the finish line, which is production," said Sorensen, noting that the process is constantly being refined for efficiency. "And that involves a lot of elements, a lot of discipline. ARCH's capabilities augment and accelerate our commercialization efforts beyond military funding to enhance investments by all stakeholders."

A DISCIPLINED APPROACH

If anyone is familiar with that kind of discipline, it's Ritter. He noted that, of the thousands of companies and product ideas that the ARCH team sees each year, the firm only makes about 10 to 15 investments. That kind of discerning eye can only be a boon to the people and infrastructure tasked with protecting U.S. Soldiers from a number of encroaching threats. "We think there's a good overlap between the kinds of companies we're working with and Department of Defense needs regarding traumatic brain injury, post-traumatic stress and the optimization of human performance," Ritter said.

Regardless of the need or interest area—and given USAMRDC's wide and global footprint, there are a good many—the partnership with an outside firm like ARCH has, itself, become the kind of game-changing force the command is

routinely looking for in products and therapeutics. "We're excited to partner with venture capital and try something new," said Sara Langdon, USAMRDC program manager for other-transaction authority agreements with MTEC. "We aim to leverage, through MTEC, the expertise and infrastructure of ARCH to support current and future partnerships in the commercial space."

CONCLUSION

As for the fruits of all that labor—the physical products and technologies themselves—Sorensen said (with a notable degree of excitement) that MTEC and USAMRDC will be releasing updates in the coming months; a real achievement, given that the partnership between MTEC and ARCH is still relatively young. Meanwhile, MTEC will continue to work with other venture capital firms as well ("a small handful of firms," in Sorensen's words). Additionally, and as a testament to MTEC's enduring efforts to reach as far into the corporate world as possible, the organization is creating a new Venture Corps; a sub-entity designed to specifically advance conversations with former military personnel in the investment arena who—like Ritter, for example—understand the importance of the military medical mission.

"We think those engagements with the private markets are mission critical,"

Sorensen said. "We think that they'll be a true measure of our service to the military and the warfighter, and [also] our service to our members."

That brings the spotlight back to Ritter, who has found a way to continue his Army service well after hanging up his uniform. For him, it's a familiar path to walk—and yet, at the same time, it covers some new and interesting terrain. "For me personally, it's been really great to start this partnership with MRDC and to help them find new technologies that can make a difference," he said. "Any connections we can make are great for us as a firm, but it's also personally satisfying."

*For more information about the USAMRDC, go to **https://mrdc.amedd. army.mil/**. To learn more about MTEC, go to **https://www.mtec-sc.org/**.*

RAMIN KHALILI is a writer with USAMRDC's Public Affairs Office. Before assuming his current role, he spent five years as the knowledge manager for USAMRDC's Combat Casualty Care Research Program. During his previous work as a broadcast journalist, he earned an Associated Press Award for his work in Phoenix before serving as chief NASA correspondent for CBS in Orlando, Florida. He holds a B.A. in communications from Penn State University.

BUILT FOR SPEED

Cyber threats require a lightning-fast response. With innovation at the heart of its organizational culture, Applied Cyber Technologies designed an acquisition formula for speed.

by Fianna Litvok
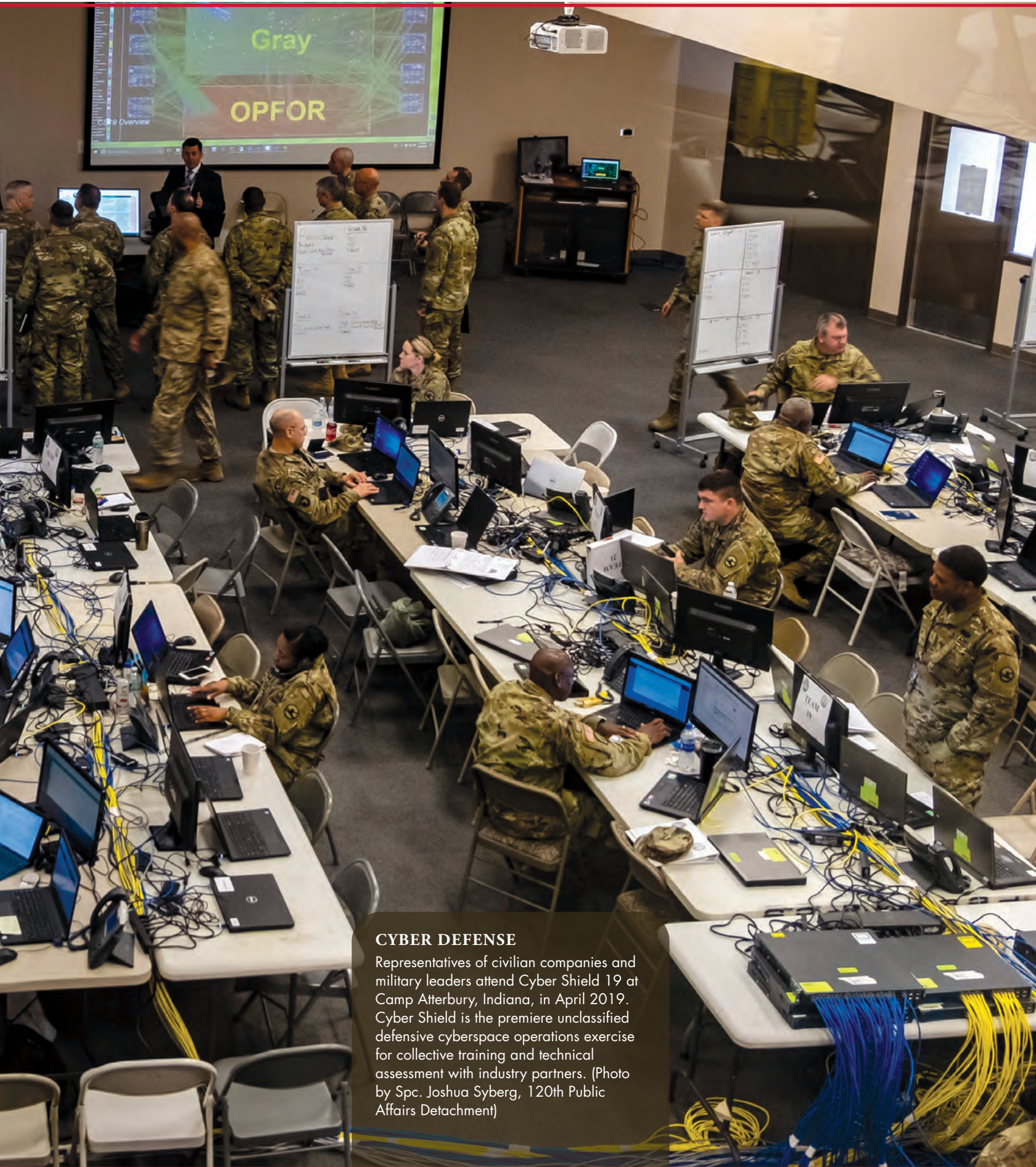
CYBER DEFENSE
Representatives of civilian companies and military leaders attend Cyber Shield 19 at Camp Atterbury, Indiana, in April 2019. Cyber Shield is the premiere unclassified defensive cyberspace operations exercise for collective training and technical assessment with industry partners. (Photo by Spc. Joshua Syberg, 120th Public Affairs Detachment)

Change rarely comes easily to large organizations, and it is especially difficult for organizations that are steeped in standardization, formulaic procedures and repeatable methods. Culture change, in particular, is infinitely more challenging than changes in processes or policies.

The DOD acquisition workforce is undergoing a fundamental shift in cultural mindset. After years of employing encumbered, linear acquisition processes, DOD is moving toward agile acquisition. This change comes out of necessity—our current threat landscape demands a framework that allows for more flexibility and less rigidity. While these changes are welcome, it is reasonable to assume that it will take a while for the new mindset to become ingrained and for DOD's acquisition culture to truly change. There is plenty of reason to be hopeful, however, thanks to the early efforts of forward-thinking program offices and the subsequent emergence of updated acquisition policies and the Adaptive Acquisition Framework.

DEFENSIVE CYBER'S NEED FOR SPEED
At Applied Cyber Technologies (ACT), a program within the Defensive Cyber Operations (DCO) portfolio of the Program Executive Office for Enterprise Information Systems (PEO EIS), flexibility is part of the organization's DNA. ACT is charged with defining ways to rapidly assess, integrate, acquire, field and maintain advanced defensive cyber solutions for the Army's cyber defenders. When ACT was stood up in 2018, there was no precedent to follow, and many questions had yet to be answered. In the absence of an established operational framework to follow, ACT sailed into uncharted waters and expected to make some waves.

Since its inception, ACT has looked for ways to produce and field the most innovative solutions to cyber defenders as quickly as possible. In many ways, this required looking at the problem through an entirely new lens. ACT realized that, in order to increase speed, it needed to close the gap between solutions development and delivery, and system fielding and feedback. Just as critical to the equation was implementing industry-tested Agile methodologies and maximizing relationships with industry partners. By zeroing in on the problem that needed to be solved and identifying the best practices to address the problem, ACT developed the ability to work at speeds never before realized.

CRUNCHING THE NUMBERS
Within 18 months of opening its doors, ACT created a framework for rapid acquisition, developed a robust vendor ecosystem and created a collaboration workspace that became the Army's innovation center for defensive cyber prototypes. In 2019 alone,

BIG DATA
Lt. Col. Peter Amara, product lead for Applied Cyber Technologies (ACT), briefs Jeffrey White, then the principal deputy assistant secretary of the Army for acquisition, logistics and technology, on the Army's big data platform. (Photo by Jennifer Sevier, Defensive Cyber Operations)

FIELD TRAINING
Capt. Richard Shmel, a cyberspace operations officer, participates in the 915th Cyber Warfare Battalion's field training exercise in October at Muscatatuck Urban Training, Indiana. (Photo by Steven Stover, 780th Military Intelligence Brigade (Cyber))

ACT awarded 12 software tool prototypes at a cost of $12.8 million, with an average lead time to award of four to six months. Additionally, ACT hosted 3,500 visitors and held more than 250 events, including cyber exercises for the U.S. Army, Air Force and Marine Corps.

More recently, ACT developed its Defensive Cyber Operations Resource for Updates, Innovation and Development (DRUID), a cloud-based continuous integration and continuous delivery pipeline that reduces systems integration time for tools from months to approximately one week. ACT developed DRUID in order to push systems integration to the beginning of the acquisition process, thus allowing for better informed—*and much quicker*—prototype-project award decisions. Since these decisions can now happen much

earlier in the process, the overall time to acquire tools is greatly reduced. Additionally, DRUID enables ACT to receive an increased number of tools for assessment, allowing it to evaluate more tools in a much shorter period of time. Interestingly, one of the most innovative features of DRUID is its ability to shift the cost of tool integration from government to industry. ACT understood that industry would willingly offer prototypes at no cost in exchange for the chance to secure an award.

During the summer of 2019, in the first other-transaction authority (OTA) prototype round using DRUID, 22 vendors successfully delivered functional tool images containing prototypes through the pipeline. It took less than one week, and the only cost to the government was the

outlay for DRUID, which is a mere fraction of what it would have cost to get the 22 tool images ACT secured in just the first prototype round.

DRUID greatly expands the breadth of vendor participation, significantly reduces tool integration time, increases the number of tools that can be assessed and eliminates the government's upfront cost for prototypes. This approach will enable ACT to provide the most effective solutions to cyber defenders *quickly*, while saving the government a significant amount of money in the near and long term.

Of course, advances like DRUID never happen in a vacuum. ACT's team and industry partners were critical to making it all happen. But, more than anything, ACT's culture has been its strength. ACT

DEFENSIVE EXERCISE
Nearly 600 Soldiers from more than 40 states participated in the National Guard's Cyber Shield 20 exercise Sept. 12–27. The defensively focused tactical annual cyber exercise was hosted virtually and gave Soldiers the chance to develop and use their cyber defense skills. (Photo by Master Sgt. Becky Vanshur, Idaho Army National Guard)

Traditional rapid acquisition process

📅 **4-12** months

OTA issued | Recieve quad charts | Recieve white papers | Recieve white papers | Hold one-on-one meetings | Collect additional information | Vendors build pilots | Conduct assessments | Make selection

Requirements identified

Accelerated acquisition with DRUID

📅 **2-3** weeks

Procurement

OTA issued | Prototype software built into DRUID | Conduct assessments | Make selection

DRUID PIPELINE
Applied Cyber Technologies' (ACT) Agile DRUID pipeline significantly streamlines the technology acquisition process. (Graphic by Katherine Lindsey, ACT)

is fortunate to have developed a culture that inspires its team to think outside the box, to look at things a bit differently and to take chances.

"ACT provides a place for the brightest minds in cyber to collaborate, exchange ideas freely and develop the next generation of cyber solutions," said Lt. Col. Peter Amara, product lead for Applied Cyber Technologies. "In order for a game-changing innovation like DRUID to flourish, we had to remove the prescriptive processes and rigid restrictions that have stifled technological creativity. I'm proud of our team and what we've accomplished so far, from both a technology innovation and acquisition perspective, but I believe the best is yet to come."

CONCLUSION

Out of sheer necessity, ACT developed a way to do rapid acquisition by embracing a culture of change and innovation. Now, with the publication of updated DOD guidance and the Adaptive Acquisition Framework, the acquisition workforce has a promising way forward. Understandably, culture change is never easy

and takes time. Some programs will lead the way; others will make changes slowly and perhaps somewhat reluctantly. However, change for the better is always worth making, even if it is uncomfortable at the time. Agile acquisition processes enable program managers to provide the best possible capabilities as quickly as possible to Soldiers, and in the end, they are the reason for all this.

For more information, visit **https://www.eis.army.mil/programs/act**.

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SOLDIER-CENTERED
AGILE

While sometimes theoretically at odds, Agile development and Soldier-centered design can be mutually beneficial, as shown in 12 lessons learned.

by Pam Savage-Knepshield, Ph.D., Lt. Col. Jason Carney, Maj. Brian Mawyer and Alan Lee

Over the last 10 years, the U.S. Army has worked to change the fundamental under-pinnings of the acquisition process and shed its reputation for being slow, frustrating, complicated and expensive. The promise of Agile acquisition to enable responsive delivery of capabilities based on continuous user feedback (Soldier touch point events) has become a reality. Agile development integrates design, development and testing into an iterative life cycle to deliver incremental releases of capability. Soldier-centered design places those who ultimately use the system squarely in the center of the design process ensuring their feedback and needs are the foremost consideration when making design trade-offs and decisions. At face value, it appears the two should dovetail nicely; both are philosophies, and both focus on iteration and inclusion of the end user. Despite their commonalities, we encountered several differences that played a significant role in their successful execution and integration. Overcoming these points of contention is the focus of this article.

BACKGROUND: THE SOFTWARE MODERNIZATION PROGRAMS

The Project Manager for Mission Command, within the Program Executive Office for Command, Control, Communications – Tactical (PEO C3T), integrated Agile and Soldier-centered design during two software modernization efforts—the Advanced Field Artillery Tactical Data System (AFATDS) 7.0 and Precision Fires Dismounted Block 2. AFATDS is the primary system used for planning, coordinating, controlling and executing fires and effects for field artillery weapon platforms and for Long-Range Precision Fires Cross-Functional Team initiatives, which are among the Army's primary modernization lines of effort. Precision Fires Dismounted is used by forward observers on the frontline to transmit digital calls-for-fire and precise target coordinates to AFATDS for dynamic target prosecution. Although the software efforts for these programs vary along many dimensions such as size, complexity and team composition, we found our lessons learned

INCLUDE DEVELOPERS IN SOLDIER TOUCH POINTS

Samantha Mix, left, a Leidos User-Centered Design Team member, discusses user interface requirements with a Soldier at Fort Sill, Oklahoma. An early, accurate understanding of users' goals and the context in which they will use a system is crucial for the design of an effective user interface. (Photos and illustrations by Dr. Pam Savage-Knepshield)

Not all feedback will result in innovation; however, if you are hearing consistently that something is problematic, it probably warrants further investigation.

USERS FRONT AND CENTER
Through Soldier-centered design, end users are front and center in the development process. Rather than testing a prototype after design has been completed, this approach emphasizes early and frequent feedback from Soldiers throughout the process. (Image by Getty Images)

applicable to both and extensible to non-Agile development efforts as well.

POINTS OF CONTENTION

Agile is typically a developer-led philosophy whereas Soldier-centered design is driven by human factors practitioners, human-systems integration analysts or user experience professionals. The Agile Scrum approach minimizes upfront planning in favor of producing code quickly, whereas Soldier-centered design maximizes upfront planning informed by user research (Soldier touch-point events) to produce a rough design that will evolve and crystallize through iterative user testing into a concrete final product. Agile measures progress by the amount of working software developed, while Soldier-centered design measures progress by how well users can achieve their goals using the system.

Just like other government program managers before us, we followed the Defense Acquisition Framework and integrated aspects of Agile development—sprints, releases, user stories, backlogs and burn down. We merged Agile development with Soldier-centered design to lay the foundation for system design—identifying the most frequent, critical and problematic tasks that require design

emphasis and documenting user stories by observing them at work in the field and sitting with them as they demonstrated system use during normal operations. We also conducted online surveys, focus groups and participatory design sessions. When software releases became available, we began conducting usability tests to identify design issues and enhancements, which is where the focus remains for both programs, at present. Along this journey, we found some things worked well and some did not. Here, we focus on what worked well and what we will do differently in the future.

LESSONS LEARNED

The top 12 lessons learned during our efforts to integrate Soldier-centered

design into Agile development include the following:

Build a strong design foundation with early Soldier-centered design activities.

Bringing human factors and human-systems integration onboard early to lead Soldier touch-point events builds a solid design foundation by validating user needs, documenting workflows, developing user stories and identifying what is working well and what is not, as well as uncovering feature sets requiring design emphasis and capability gaps existing in manual processes and legacy systems. With these essential building blocks, the Soldier-centered design team will create a rough design of the user interface that

will evolve through iterative testing with users, often referred to as developmental operations (DevOps). See Figure 1, Page 26.

Create multidisciplinary, user-focused, collaborative teams.

Assembling multidisciplinary, collaborative teams whose members—developers, designers, engineers, domain subject matter experts, logistics, training, safety, cyber and testers—attend at least one Soldier touch-point event enables each team member to approach design and development with the user's context in mind. Most developers have never met a user and have no concept of the environments in which they work. The insights and empathy gained through immersion in a user's experience will create a common bond within the team and inspire all to stay focused on users and their needs even under the crunch of rapid development cycles.

Ensure development of a user interface style guide for use by all agile teams.

A style guide contains a set of design guidelines that specifies visual presentation of content, interactive elements and how they behave (buttons, form fields, dialog boxes, menus, navigation, etc.). See Figure 2, Page 27.

Ideally, a style guide should include reusable code snippets for front-end design elements to increase adoption by separate small Agile teams and should be in place before the start of coding. Adhering to the guide will ensure a consistent look and feel across feature sets, enabling users to transfer knowledge gained from using one feature set to another. Users can focus on performing a task rather than having to learn how the system works every time they use another one of its features. During internal vendor testing, screen layouts and interactive elements should be compared against the style guide to ensure compliance. Doing so will reduce the backlog created by identification of design inconsistencies during usability testing.

Refine the design with user feedback early and often.

The Soldier-centered design team needs to work one step ahead of a sprint to collect user feedback, document the design and

SOLDIER-CENTERED FROM THE START

Soldier-centered design is so tightly woven into the fabric of the Precision Fires Dismounted program office that, when it came time to request authorization from the milestone-decision authority to proceed with limited deployment, it seemed only natural to invite Soldiers to the meeting. Forward observers from 1-320th Field Artillery Regiment, 2nd Brigade Combat Team, 101st Airborne Division (Air Assault) had participated in user juries and usability testing. The Program Executive Officer for Command, Control and Communications-Tactical Brig. Gen. Robert M. Collins, asked them to weigh-in on the go or no-go decision.

They explained that, because the program office and developers listened to them and implemented the changes they requested, the system was much improved and they were looking forward to using it—"the earlier the better." One Soldier claimed that, "it is 20 times better than the original PF-D." Whether it is 20 times better is difficult to measure, however, usability test results have demonstrated a 40 percent increase in the ability of Soldiers to accomplish critical tasks on the first attempt—a measure of the intuitiveness of the user interface.

A 29-point increase in its mean score on the industry-standard System Usability Scale brought the modernized system's score 20 points above what is considered average and within the top 10 percent of scores for all commercial products tested. Products with scores this high are more likely to be recommended to a friend. Anecdotal evidence provided by one Soldier supporting this assertion was provided by one usability test participant who explained, "I was talking with some of the Special Ops JTACs [Joint Terminal Attack Controllers] I work with about this, and they thought it would be really cool to use because Call for Fire is something that we require them to do." To expand on Kevin Costner's famous line from "Field of Dreams," If you build it right, they will come. The only way to build it right is to include Soldiers in the process.

Delivering real-world, operational capability enhancements relies on one fundamental principle: listening to users.

FIGURE 1

AGILE-SCD PROCESS INTEGRATION
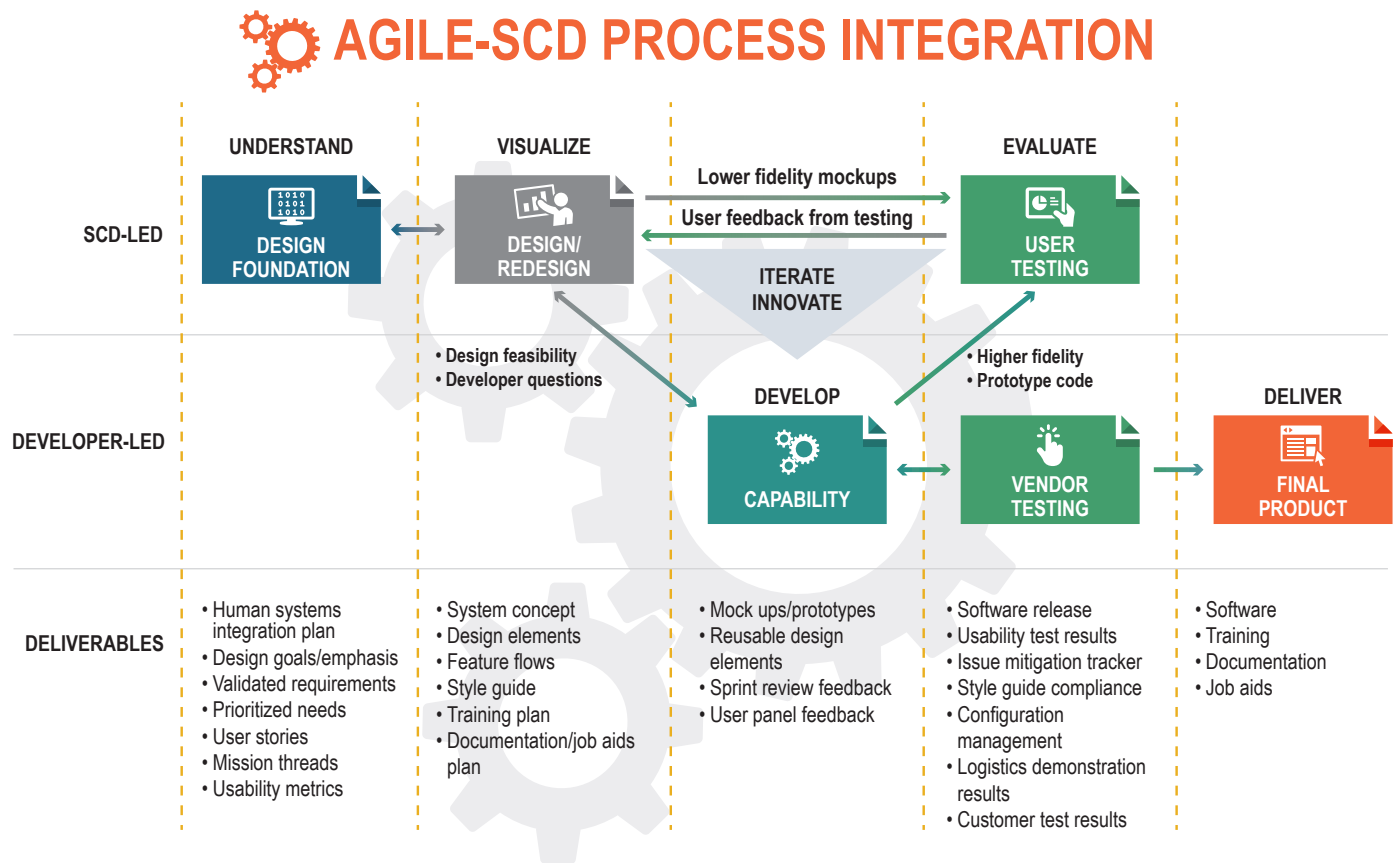
INTO AGILE DEVELOPMENT

The integrated design process reflects our lessons learned merging the two processes—identifying who best to lead specific design and development activities during each phase of the process as well as key deliverables that should influence or incorporate Soldier touch-point events.

hand it off when development is ready to begin. They need to proactively test design assumptions and tackle designs ahead of the rest of the team. When using online surveys to gather quick feedback for alternate design implementations, users should perform representative tasks using the designs; grounding feedback in realistic scenarios will increase the validity of results. See Figure 3, Page 28.

Take time to plan when to conduct usability tests; sprints do not provide an obvious point for inserting tests. Do not wait for perfect, clean code to reach out to users for feedback. Start early using paper prototypes, mockups, wireframes, simulations, stringing screens together in a slide presentation or even using emerging code. Neither the design nor the code needs to be complete to conduct part-task testing. Conduct smaller more frequent Soldier touch-point events.

Create user advisory panels.

Assemble a large user advisory panel and selectively invite members to provide feedback during Soldier touch-point events on a regular or ad hoc basis.

Identify design goals and usability metrics.

Identify design goals and establish performance and preference measures and metrics upfront to drive design. For an intuitive design, consider a target such as 85 percent of target users, who have completed advanced individual training

for their military occupational specialty and will be able to accomplish critical tasks on the first attempt.

Standardize Soldier touch-point event procedures.

Standardize usability test procedures and data-collection materials, creating templates for reuse during subsequent Soldier touch-point events to save time and ensure consistent data collection. Face-to-face usability testing is generally preferred; however, conducting virtual tests using Microsoft Teams has proven to be a viable option.

The Soldier-centered design team will validate requirements during Soldier touch-point events. Take advantage of this data to eliminate irrelevant requirements while exercising caution to avoid costly feature creep.

Fuel innovation with user feedback.

When you put your users in the center of the design process, they will tell you what is working well and what is not. Delivering real-world, operational capability enhancements relies on one fundamental principle: listening to users. We did just that when legacy system AFATDS users described their issues with a tactical modem during early Soldier touch-point events and again later when Precision Fires Dismounted user frustration with the same modem drove usability metrics down to an unacceptable level.

We handed off the issue to Army engineers who developed a prototype and revised it in real time based on user feedback. They focused on ease of use by designing a "smart" modem; one that communicates with the host application to either correct misconfigured settings or notify the user to take corrective actions when the system cannot. Not all feedback will result in innovation; however, if you are hearing consistently that something is problematic, it probably warrants further investigation.

Include the team and stakeholders in Soldier touch-point events.

Have team members and stakeholders participate in Soldier touch-point events as observers, facilitators and data collectors. This will increase buy-in for iterative design changes.

Ensure funding and resources are set aside for Soldier touch-point events.

None of these activities is without cost; ensure funds for travel and equipment have been included in cost projections and availability

FIGURE 2

DEVELOP A STYLE GUIDE
The items depicted are crucial components for inclusion in a user interface style guide. Style guides help ensure consistency across all elements of the user interface and provide source content for training and documentation developers.

of personnel to participate in Soldier touch-point event has been appropriately considered in sprint planning.

Ensure Soldier-centered design changes are included in the configuration management process.

Army Regulation 602-2, "Human Systems Integration in the System Acquisition Process," describes how to implement Defense

Instruction 5000.02 by emphasizing front-end planning to enhance design, reduce life cycle ownership costs, improve safety and survivability, and optimize total system performance. Soldier-centered design ensures Soldier inclusion in the acquisition process. In the U.S. Army, human-systems integration analysts, who are typically human factors engineers or research psychologists, develop human-systems integration plans documenting the Soldier-centered design process and planned Soldier touch-point events. They also develop standardized usability measures and metrics and data collection instruments to measure and track progress.

Human-systems integration analysts draft an issues tracker, a companion document to the human-systems integration plan, to monitor the status of issue mitigation. Before major acquisition milestones, unresolved issues in the tracker are reported in an assessment to the milestone decision authority. Rather than using a spreadsheet to track issues, analysts can complement Agile development by leveraging the same tools used for configuration management.

The human-systems integration plan and issue tracker are not contractually binding documents. Formal contractual agreements should specify how issues will be categorized (defect, enhancement), prioritized (high, medium, low) and monitored during the configuration management process. Furthermore, incentives must be established to encourage a higher level of performance.

CONCLUSION

Although our lessons learned were derived from merging the two processes for software development, they are equally applicable to hardware products and platforms, as demonstrated by the middle tier acquisition rapid prototyping effort,

FIGURE 3

REFINE THE DESIGN

A screen shot from an online survey designed to collect preference and performance data. Results determined which of two design alternatives should be implemented based on Soldier feedback.
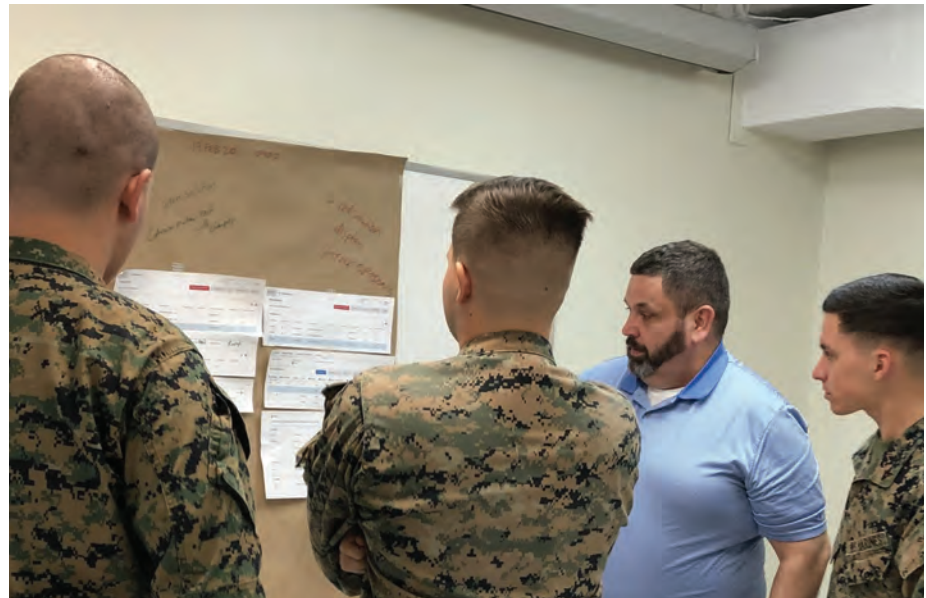
PARTICIPATORY DESIGN

Scott Sines, CACI International, Inc., moderates a participatory design session with Marines at Fort Sill, Oklahoma. During the session, Marines created paper prototypes of mocked up display screen content and task flows that they believed would support their ability to meet the "Five Requirements for Accurate Fire" and field artillery time standards for fire mission processing.

the Integrated Visual Augmentation System. This project, which is developing a heads-up-display with a wide array of capabilities, used Soldier touch-point events to understand users' needs during the rapid, iterative development and evaluation of prototype designs.

Our lessons learned are also extensible to traditional acquisition, phased product development, the waterfall process model and spiral system development. Whichever acquisition process or model is used to develop hardware or software and procure commercial off-the-shelf products, early and iterative Soldier feedback is critical for ensuring systems meet user expectations well before they are fielded. As we have learned, Soldiers' needs are not static; they evolve in response to new threats, advances in technology and changes in force structure, doctrine, tactics, techniques and procedures. Including Soldiers throughout the process helps ensure your system's design maintains relevance.

Agile and Soldier-centered design were conceived to improve upon traditional development processes. Although they share a common goal, historically the challenges and barriers to their successful integration have been difficult to overcome. However, by leveraging the strengths of each and understanding how teams can overcome inherent points of contention, the Army will be positioned to more quickly develop capabilities that users find useful and usable.

For more information about usability measures and metrics, conducting Soldier touch-point events, and Soldier-centered design contact Dr. Savage-Knepshield at **pamela.a.savage-knepshield.civ@mail. mil***.*

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James Goon, deputy product manager for Mission Command Cyber, PEO C3T, contributed to this article.

THE FEEDBACK LOOP
Dr. Katy Badt-Frissora, left, a Leidos User-Centered Design Team member, facilitates a usability test session with one Soldier while another observes their interaction at Fort Riley, Kansas. For this test, Soldiers were not provided training prior to participation because testing was designed to gauge the intuitiveness of the system's user interface.

DEVELOP A COMPREHENSIVE HSI PLAN
The table of contents from the Precision Fires Dismounted Block 2 human-systems integration plan conveys the critical elements that should be included in the human-systems integration, or HSI, plan. For example, it should describe usability measures and metrics, issue severity descriptions, agreements made with the vendor to track and mitigate issues, Soldier touch-point events that are planned and sample questionnaires that will be used during Soldier touch-point events to collect user feedback.

(Illustration by U.S. Army Acquisition Support Center)

PEOPLE OVER PROCESS

The Army Training Information System is using human-centered design to provide value to Soldiers.

by Lt. Col. Jim A. Lee

The acquisition community is in the midst of a seismic shift. Large-scale acquisitions typically follow a set of rigid rules by which people must play; the pitfalls of this approach, however, are numerous. One obstacle is the tendency to place more value on the acquisition process itself than on providing innovation and value for Soldiers.

This line of thinking is beginning to change. Although incremental in nature, a culture shift is beginning to affect the ways in which the acquisition community thinks, works and plans. In fact, this nascent shift is formalized in places like the Defense Innovation Board, which strives to recommend industry best practices to DOD challenges. To that end, there is increasing recognition that strict adherence to a project plan can stifle innovation and deter progress, and that Soldiers—not binders containing regulations and guidelines—should take priority. To maximize value to Soldiers, some acquisition teams are beginning to embrace flexible product development and its inherent unpredictability. Adopting an Agile approach integrates iterative project development, which is a radical break from traditional acquisition behavior.

The Program Executive Office for Enterprise Information Systems' (PEO EIS) Army Training Information System (ATIS) team is embracing this change of culture and process to provide valuable training to Soldiers.

Before ATIS, there has not been a centralized system providing Army commanders, leaders, Soldiers and civilians with a common operating picture of the training environment across the three domains: operational, institutional and self-development.

Currently, training managers and users have to log in to disparate systems hosted at various sites to manage and manually coordinate training events. As a result, they have to create workarounds for their unique circumstances and are unable to use real-time data in the field.

ATIS is fielding a one-stop training solution for military and civilian personnel that will roll out with limited deployment in fiscal year 2023 and full deployment in fiscal year 2024. This system will provide the roughly 2 million Soldiers (active, Reserve, National Guard) and Department of the Army civilians with timely and cost-effective training, which will support a relevant and ready Army. ATIS will retire 28 cumbersome, duplicative legacy training systems and will streamline data interfaces among 56 others. This single-entry, integrated system will subsume the Digital Training Management System (DTMS) along with the Army Learning Management System (ALMS). The current environment requires the Soldier to enter duplicate data in multiple systems, often driving him or her to find workarounds just to accomplish day-to-day tasks. The drive to retire 28 systems and deliver a new, user-friendly, single sign-on training

> The vision of ATIS is to deliver a customer-focused, worldwide, adaptive Army training enterprise capability to enable training readiness for the total force, anytime, anywhere.

COMMUNICATION IS KEY
Soldiers discuss how ATIS will help improve the way they access training. (Photos courtesy of ATIS)

experience for the Soldier required a novel approach.

ESTABLISHING NEW ACQUISITION NORMS
When the U.S. Army Training and Doctrine Command (TRADOC) generated the requirements for ATIS, the program office knew that creating a single-entry training system would be a challenge. Overall, there are over 80 systems that will be subsumed or will feed data to ATIS; some of these systems are authoritative, but many are not, and all need to come together seamlessly. TRADOC also required that ATIS be a marked improvement from what Soldiers are currently using to execute training, and that it be user-friendly.

To address these challenges and meet these requirements, ATIS leveraged the other-transaction authority acquisition strategy to deliver training capabilities to Soldiers quickly, and to engage the user

community early on and continuously during the system's development.

ATIS chose the Scaled Agile Framework (SAFe) methodology to support the development of the system. SAFe—in contrast to more conventional project management approaches—breaks up work into smaller, digestible system deployments. Developers deliver potentially releasable increments of products on a schedule, gather feedback from Soldiers, and adjust or enhance the products. This iterative process amplifies Soldiers' voices throughout the development process. Their feedback enables developers to course-correct and provides guideposts for future product releases.

According to Col. Jonathan Hughes, director of the TRADOC Proponent Office – Army Training Information Systems, "Using an Agile process during the development of ATIS affords the Army multiple touch points to shape the final product. Commanders and Soldiers who

will use ATIS in the future are able to provide input as the system evolves. Constant feedback to the development team will help ensure ATIS is intuitive, easy to use and effective for planning, executing and assessing Army training and education."

PUTTING THE SOLDIER AND CIVILIAN FIRST

Two core risks that ATIS has sought to mitigate are usability and user acceptance. Human-centered design, organizational change management and user training and education teams joined the program early during the Agile development process to address these concerns, ensuring that Soldiers would help build ATIS. The purpose of human-centered design is to ensure that Soldiers' feedback is incorporated during each step of the development process. A multidisciplinary team of stakeholders—the Human Factors Working Group—has met regularly to obtain feedback from the user community. This group, comprising both Soldiers and civilians at various installations, aims to elevate the user voice and bring it back to the development team.

According to Col. Donald L. Burton, project manager for PEO EIS's Defense Integrated Business Systems portfolio, "Our Soldiers need to know that the Army is putting their wishes at the forefront in the development of ATIS. The Human Factors Working Group is helping do just that."

Organizational change management has helped facilitate the feedback and deliver clear and concise messaging about the impact that ATIS will have on Soldiers. By being involved in the process, Soldiers have helped create a solution that is understandable and provides quick transitions, eliminating inefficient and prolonged learning periods during transition and implementation. Engaging the user community early and often in the development process has helped ensure that maximum value is delivered to Soldiers and DA civilians.

CONCLUSION

A nascent culture shift in the acquisition of capability is pulling our community toward a more innovative, Agile way of working. Incremental changes in our thinking—promoted from those within leadership—will deliver a more responsive product that better serves our Soldiers. An Agile approach will create a better product but also will incorporate the concerns of the user community throughout the development process. Soldiers' voices will be amplified early, which will catalyze continuous improvement. This change will not be immediate, and adopting it will be difficult. The potential benefits of embracing this paradigm shift, however, will deliver lasting impact for our Soldiers—by retiring

CONTINUOUS FEEDBACK LOOP

The Human-Centered Design team uses real-time feedback from the community to capture requirements that are important to them. User feedback obtained via surveys and future focus groups is foundational to creating ATIS.

28 legacy systems and improving data exchange among 56 others, the Soldier will experience a training environment that is easier to use and more responsive to his or her professional needs. This experience will save Soldiers' time that can be better spent on training readiness.

For updates and more information on ATIS, go to: **https://www.pdmatis.army.mil/Index.html.**

LT. COL. JIM A. LEE is the product manager for the Army Training Information System (ATIS) program in Newport News, Virginia. He holds a Master of International Business and a Bachelor of Business from Florida International University, as well as an A.A. from Marion Military Institute. His awards and decorations include the Defense Meritorious Service Medal, Meritorious Service Medal with four Oak Leaf Clusters, Joint Service Achievement Medal, Army Achievement Medal with two Oak Leaf Clusters, Joint Meritorious Unit Award, Iraqi Campaign Medal, Global War on Terrorism Expeditionary Medal, Korean Defense Service Medal, Humanitarian Assistance Medal, Combat Action Badge, Recruiting Badge, and Order of St. Barbara.

TAMING CHAOS

Tiffany McCants is a proactive problem solver. In 2001, while the rest of the U.S. was grappling with an economic recession and rising unemployment, McCants was a junior in college. She was still a year from graduation with a degree in mathematics and business, but she saw the writing on the wall. "I had friends who were engineers who couldn't find work in their field, for years," she recalled. So she started looking for internships to make herself more marketable to employers. That's when she found out about the DOD Student Career Experience Program (now the DOD Internship Program), and she applied for a position in the U.S. Army Tank-automotive and Armaments Command (TACOM) Integrated Logistics Support Center. "Honestly, I had no idea what TACOM was, or what they did," she said. "I went in for an interview and I'd never been more nervous in my life. It's so funny to think about, now." Nervous or not, she must have done something right, because she got the job. And she's been an Army civilian ever since.

Today, McCants works as a logistics management specialist for the Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS). "I call myself the fleet synchronization officer," she said, "because that's really what I do." She works alongside the assistant PEO for Logistics, where she manages the planning and synchronization of a very large and diverse fleet of products. "It's a lot of planning and synchronizing of the fleet, the funding and the requirements," she said. "My work involves knowing the status of the fleet—age, condition, economic useful life—and helping the project managers analyze whether they should buy new or modernize their existing fleet, or a combination of both." At PEO CS&CSS, the fleet consists of myriad driven and towed products, including trucks, trailers, construction equipment, cargo parachutes, heaters, air conditioners, battlefield kitchens, laundry units, generators and more.

"I have the primary responsibility of overseeing the Army equipping process that involves using enterprise tools such as the Decision Support Tool and the Army Equipping Enterprise System," McCants explained. Collaborating with Army Materiel Command, Army Sustainment Command, Army G-8 (finance) and other PEOs, "we have been fully engaged and leading the way in the process; tracing funding to production, production to allocations and authorizations, and allocations and authorizations to fielding and accountability."

The biggest challenge in her work—managing change. "I've seen a lot of changes during my career, and the Army is *really, really* changing now," she said. "It's an exciting time." But change isn't always easy. "It can be hard for people to change the way they do their jobs. It's a culture and a mindset change that we have to accomplish." McCants said automation is simplifying routine work in the PEO and across the Army, but "we have people still using spreadsheets and doing

ACCOLADES
A Detroit Federal Executive Boards Public Service Recognition Week event, held May 8, 2019. Tiffany McCants, first row, third from right, was recognized for her hard work, along with other PEO CS&CSS employees and supervisors. (Photo by U.S. Army Garrison-Detroit Arsenal)

" *It's something I believe in — making sure our Soldiers have the equipment they need to stay safe in their operational environment.* "

double work." She has learned the value of converting the skeptics, rather than focusing all her efforts on early adopters or willing participants. "Once they see the value in what you're doing, they will be your biggest ally," she said. "When people see, 'Oh, wow, that person used to be the biggest naysayer,' then it's not just coming from Tiffany." Creating advocates for change is a challenge she readily accepts. "I always need a new challenge," she said. "That's just my personality."

At times in her Army career, McCants has thought about leaving to take on new challenges in private industry, but she realized that wasn't the right choice for her. So, why does she stay? "It's the mission," she said. "It's something I believe in—making sure our Soldiers have the equipment they need to stay safe in their operational environment." She has had the opportunity to stretch herself and develop new skills, working in nearly every project

management (PM) office within the PEO, and she never takes that for granted. "That's the best thing about working for the Army," she said. "The sky is the limit." Along the way, she has made a name for herself as someone who can be counted on to solve problems. "I enjoy that," she said, "turning mayhem into something that looks like progress."

In her spare time, McCants enjoys painting. It's a talent she never knew she had, until she signed up for an art class in her community. "It opened up a new world to me," she said. "It's a great stress reliever, and I was able to tap into a side of myself that I wasn't aware I had." It also allows her to explore the possibilities without the fear of making a mistake. "When you're in a PM, if you make a mistake, it could cost hundreds of thousands of dollars, and you may never live it down," she said. But in art, the stakes aren't quite so high. "In art, if you make a mistake, it could be like Bob

Ross says, a 'happy little accident.' And it could actually be something beautiful."

McCants shares similar advice with junior acquisition personnel, when she has the opportunity. "I tell them to take notes, ask questions, and never be scared to make a suggestion or try something new. Just because something hasn't been done, doesn't mean it cannot be done." She said that many of the innovations in DOD today came from someone having a fresh, new idea, and she encourages others to think outside the box as well. And she imparts a little bit of that Bob Ross wisdom, saying, "It's OK to make a mistake." But that's where she parts ways with America's favorite art teacher. "In acquisition, you have to learn from your missteps and never make the same mistake twice."

—ELLEN SUMMEY

PPE IN A HURRY

Tom Kloehn and his team assembled PPE contracts at much quicker speeds than normal, despite no one physically being in the office. The timeline went from around 30 days to less than five. (Photo by Edwin L. Wriston, West Virginia National Guard)

WHEN COVID CALLS

The pandemic's culture change switched the focus from a normal workload to getting the PPE out the door.

by Rachel Porto and Adam Lowe

Tom Kloehn has had a few more responsibilities than usual, thanks to the COVID-19 pandemic.

His normal day-to-day routine was quickly shelved when the Army asked his team to provide what seemingly the entire world needed: personal protective equipment (PPE). As it happened, Kloehn's team was tasked with working with the Army Contracting Command (ACC), General Services Administration (GSA) and the Defense Logistics Agency (DLA) to award contracts for KN95 respirators, face shields, nitrile gloves, hand sanitizers, eye protection, biohazard bags and combat face coverings, as well as thermometers, shoe covers, surgical caps, surgical gowns and surgical masks. "[The U.S. Department of] Health and Human Services and DOD entities would say to us, 'We have X amount of dollars for PPE; how can we get the biggest bang for our buck?' So our team would start strategizing by seeing what's on the market and what's the fastest and cheapest way we can get this out to the Soldiers who need it," said Kloehn.

THE BIG SHIFT

Kloehn normally leads a product management team, working on programs of record that focus on protecting the joint services against chemical, biological, radiological and nuclear (CBRN) threats via mass personnel contamination mitigation systems. His team has also worked on the development of a transfer case that can protect mortuary affairs Soldiers and air crew members from contamination as they work to repatriate the remains of service members or military dependents who died in a CBRN-contaminated environment while outside the continental U.S. It's the type of 9-to-5 job that most high school guidance counselors don't often talk about. Despite the unsung nature of the job, Kloehn takes great satisfaction knowing his team provides a capability to the warfighter that not only protects them from harm, but allows them to continue and complete their mission in a potentially dangerous environment.

But at the beginning of the pandemic, Kloehn was asked to do something a little outside of his wheelhouse. His team pivoted from its usual CBRN protection procurement and dug through regulatory and technical requirements and, together with ACC, got the PPE contracts together at much quicker speeds, reducing the timeline dramatically, despite no one physically being in the office. The timeline from requirements identification to contract award would typically take around 30 days for procurements similar to these; however,

THE WHOLE KIT AND CABOODLE
The team was tasked to award contracts for things like KN95 respirators, face shields, nitrile gloves, shoe covers and surgical caps, gowns and masks—similar to the ones worn here by Canadian Army Capt. Zack Zeiler, a dentist, left, and Master Cpl. Carla MacNeil, a dental technician, in April at Erbil Air Base in the Kurdistan Region of Iraq. (Photo by Spc. Angel Ruszkiewicz, Combined Joint Task Force, Operation Inherent Resolve)

contracts were being executed in less than five. Once other agencies and organizations realized how quickly his team procured these PPE, they approached Kloehn and his teammates for help.

A lot of research went into determining which contract vehicles would work best to help procure the most PPE at the best price. "The market research team, led by Chuck Nuce, was a big part of this," Kloehn explained. "In the beginning, it wasn't just strategizing on what contract vehicle it was going on. The very first piece of this was figuring out, 1) Who has this, 2) Who has the amount we need, and 3) Can they get it to us in less than 30 days?" That team made calls, sent emails, pounded virtual

pavement and would then come back to the larger team with a formal report.

Whether the team was procuring PPE with funds from the Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND) or from other organizations, Kloehn was involved with the whole process—from researching and choosing vendors to collaborating heavily on the delivery side with the Army's Tank-automotive and Armaments Command and then processing final payment with the vendors. While the acquisition process is typically slow, these contracting drills for acquiring PPE have been rapid-paced. Because of his

The timeline from requirements identification to contract award would typically take around 30 days for procurements similar to these; however, contracts were being executed in less than five.

team's dedication and willingness to work extended hours to complete the mission, it was able to turn around proposal reviews within 48 hours, unheard of in normal circumstances.

The team encountered many restrictions when procuring not just the PPE but also the waivers that would need to be applied to make the PPE acquisitions possible. Because some of these products are made outside of the U.S., Kloehn and his team needed waivers for the Berry Amendment, which says certain textiles and fabrics must be U.S. made, as well as waivers for the Buy America Agreement and the Trade Agreement Act. This meant they had to do a lot of regulatory work in order to understand what was possible and what was not, had to bring in lawyers to learn the nuances of the regulations, and needed to work with the highest levels of the Office of the Secretary of the Army in order to determine how to handle these roadblocks and decide when to push some of the items to DLA because they weren't able to find a workaround. "Again, this was far outside the scope of the work we typically do in non-pandemic circumstances, so it was a lot of learning and growing on our end, and even we were surprised by some of the things we learned along the way," said Kloehn. For example, when procuring basic PPE, even when it's intended for non-medical use (like walking around outside), it still has to adhere to medical regulatory requirements. This led to rejecting some already-procured items, but it also got the team smarter on what was expected from

U.S. Army Medical Research and Development Command on all these PPE items.

BUILDING THE TEAM

Tom Kloehn said that he does what he can to mentor every member of his team, and explained that taking advantage of opportunities outside of normal swim lanes can be a benefit to anyone's professional career. "This not only allows for junior personnel to develop new skills and abilities, it can also highlight adverse qualities that may not provide value as a leader in the acquisition workforce. Our team's COVID-19 PPE efforts are a great example. Our lead test analyst is the primary lead for communicating with all of the PPE vendors and submitting all regulatory approval requests, while our lead program analyst is coordinating the receipt, inspection and acceptance of all material at the Army warehouse," said Kloehn. "Both of them are working way outside of their normal roles but definitely knocking it out of the park."

"Even when our efforts shifted, my team continued to pull together and went above and beyond to make sure we could complete the mission and help get the warfighter the items they needed," said Kloehn.

CONCLUSION

Kloehn and his team will undoubtedly return to their core mission when the pandemic subsides—the need for mass decontamination systems and human remains transfer cases haven't gone

anywhere—but not before taking a lot of the lessons learned with them. "This effort proved that when working with contracting and industry, we can do things a lot faster when we put our minds to it," he said. "That's been a huge takeaway and I hope it continues. I don't need to commute two hours to get this job done."

For more information on JPEO-CBRND's roles in the COVID-19 response, visit *https://www.jpeocbrnd.osd.mil/corona-virus.*

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ADAM LOWE is a contractor with Booz Allen Hamilton, supporting the JPEO-CBRND as the acting public affairs officer. Before working at Booz Allen Hamilton, he worked various public affairs jobs at a national security think tank and mental health nonprofits. Lowe holds an M.S. from the University of Maryland's School of Public Health and a B.S. and B.A. from James Madison University.

VIEW FROM ABOVE
Aerial view of the George Mason
University campus at dawn. (Image
courtesy of Nicolas Tan, Creative
Services at George Mason University)

A DEEPER DIVE

George Mason University study seeks to develop playbook for program managers to find best ways to work with innovative industry.

by Michael Bold

Dr. Jerry McGinn
Executive director of the Center for Government Contracting

Alex Gallo
Executive director of the Common Mission Project

How can DOD and commercial companies work together in the most efficient way possible? Discovering the answer is the yearlong quest of a study launched in January by the Center for Government Contracting at George Mason University.

The goal of the study is to develop a best-practices acquisition playbook for the Information Age that program managers can consult and tailor to work with industry partners. Researchers will conduct interviews with government and industry professionals to discover what actually works—and doesn't work—in the acquisition process.

"Our objective is to have this be very practically focused for program managers all around the Army acquisition community as well as the other services," said Dr. Jerry McGinn, executive director of the Center for Government Contracting, within GMU's School of Business. "That's where the rubber meets the road, and that's where the culture gets changed."

BLUE RIBBONS BE GONE
McGinn, who graduated from the U.S. Military Academy at West Point and served as an Army infantry officer, says he has no interest in the study becoming another in a series of blue-ribbon commissions seeking to reform the defense acquisition system. He's after a change in approach, rather than a new set of reforms. "If you're reforming something for 50 years, then there's something fundamentally wrong," he said.

DOD has created entities such as the Defense Innovation Unit, the Army Futures Command and the Air Force's AFWERX to discover ways to target nontraditional high-tech companies for partnerships without being bogged down by the Federal Acquisition Regulation. They and other programs have

GETTING SCHOOLED
Capt. Alex Pytlar works with U.S. Military Academy cadets during a Hacking for Defense course in 2019. Hacking for Defense is currently taught at 44 universities nationwide. During the course, students learn problem-solving skills while working to find solutions to real DOD problems. (Photo by Brandon O'Connor, U.S. Military Academy at West Point)

used other-transaction authority agreements, commercial-solutions openings, the Small Business Innovation Research and the Small Business Technology Transfer programs, and other mechanisms to develop prototypes and systems. But scaling those efforts into programs of record has proven daunting. What's more, those approaches have just been an end run around the problem, McGinn said. "What we need to do is, instead of trying to fix the system again, how do we bring the best practices into and adapt the existing system? Get the product managers, program managers, contracts officers across the department to help them bring some of these commercial ideas to their work."

In addition to his Army career, McGinn has experience within DOD, having served as the senior career official in the Office of Manufacturing and Industrial Base and as special assistant principal deputy undersecretary of defense for policy. He also spent a decade in senior defense industry roles, at McGinn Defense Consulting LLC, Deloitte Consulting LLP, QinetiQ North America, and Northrop Grumman. He was also a political scientist at RAND Corp.

NEXT GENERATION INSURGENCY

The study is being funded by donations to the GMU Foundation in support of defense acquisition research from the

Common Mission Project and some of the leading companies in technology: Anduril, BMNT Inc., Improbable, Scale, Balius Partners and goTenna. The Common Mission Project is the nonprofit partner of BMNT, whose CEO, Peter Newell, is a former Army colonel who led the Rapid Equipping Force before retiring to lead BMNT's mission of linking DOD with Silicon Valley innovation. The Common Mission Project runs Hacking for Defense, which is now being taught at 44 universities nationwide, as well as Hacking for Diplomacy and other mission-driven academic programs.

In addition to raising donations for the study, the Common Mission Project

organized the advisory group of companies that donated funds for the project and is advising the researchers. "What we want to do is harness the intellectual talent around defense innovation, and figure out how to get more tech and problem solving into the government," Alex Gallo, Common Mission Project's executive director, said in a February interview with Army AL&T. Gallo previously was a senior associate at the Center for Strategic and International Studies, a Washington think tank, and a staffer for the House Armed Services Committee.

TECH WHERE IT'S NEEDED

Gallo, who is also a West Point graduate, looks back at his deployment to Iraq as an infantry officer in 2004 as an example of an acquisition process that had lost its way. "When we got to Kuwait, we got a ton of really interesting and cool equipment. My Soldiers and I, we had fun learning about it in the deserts of Kuwait. But when we went to Samarra, Iraq, and combat, all of that new equipment sat in our Connex [cargo container] for the entire year, because they were all solutions in search of problems. And they were not solutions to any of our problems."

The Common Mission Project is looking for problem-based solutions for defense acquisition. "We want a problem-based, disciplined and, yes, entrepreneurial framework," using industry's agile approach, Gallo said. "But it has to be within a disciplined framework. And it has to be a problem-based solution, because we could bring in a ton of emerging technology, and at a rapid pace, but they may not actually serve a warfighter need."

McGinn started George Mason's Center for Government Contracting in 2019. Taking advantage of its location—the university is a 35-minute drive from the Pentagon, depending on traffic (which

PHONE A FRIEND
Cadet Jay Yang, a member of the U.S. Military Academy class of 2020, speaks with an expert on the phone while taking notes during a Hacking for Defense course in July 2019. (Photo by Brandon O'Connor, U.S. Military Academy at West Point)

during pre-COVID times could be formidable)—the center seeks to fill a niche that no other university has filled—"the business of government and the overall ecosystem of government contracting," as McGinn put it. "There's no university really, as a research center, focused around the business of government and how the Department of Defense and other agencies work with companies. I saw that and it surprised me."

CONCLUSION

In a year, the acquisition playbook that the GMU study produces will aim to combine the best of commercial and defense innovation in a product that government professionals will find educating, informative and full of practical approaches to innovative acquisition. The playbook will be used for not only the benefit of the

students, but also the benefit of government, industry and academia.

"It's really about taking the tools that have been developed, in law and regulation and then policy, and helping the system move forward, because a lot of this is about changing culture," McGinn said.

MICHAEL BOLD provides contract support to the U.S. Army Acquisition Support Center. He is a writer-editor for Network Runners Inc., with more than 30 years of editing experience at newspapers, including the McClatchy Washington Bureau, The Sacramento Bee, the San Jose Mercury News, the Dallas Morning News and the Fort Worth Star-Telegram. He holds a Bachelor of Journalism from the University of Missouri.

TACTICAL AI:

FLYING DRAGON

A U-2 Dragon Lady assigned to the 9th Reconnaissance Wing prepares to land at Beale Air Force Base, California. This flight, on Dec. 15, marked the first time in DOD history that artificial intelligence was on board a military aircraft. Air Combat Command's U-2 Federal Laboratory developed an algorithm to train the AI to execute specific tasks ordinarily done by the pilot. (Photo by Airman 1st Class Luis A. Ruiz-Vazquez, U.S. Air Force)

NOT A CASTLE IN THE SKY

PEO C3T's pathfinder project will pave the way for future AI enablers.

by Thom Hawkins and Peter Schwartz

There are times when our ignorance is unquantifiable, and that can put our plans at risk. As former Secretary of Defense Donald Rumsfeld said, "There are known knowns. There are things we know we know. We also know there are known unknowns. That is to say, we know there are some things we do not know. But there are also unknown unknowns, the ones we don't know we don't know." The best way to reduce the risk of "unknowns unknowns" is by exploring the domain in a purposeful way. You're sure to encounter both the expected and the unexpected, and along the way, leave in place a path for others to follow. It's only by facing those unknowns head-on and finding a path through them that you can make your vision a reality and not just a castle in the sky.

As the materiel developer for the tactical network and the mission command and fires control applications that run on the network, the Program Executive Office for Command, Control and Communications – Tactical (PEO C3T) has a particular niche to scratch when it comes to artificial intelligence (AI). For example, most out-of-the-box AI solutions assume seamless connectivity between data input, data analysis and model output to point of use. In a tactical environment, we must compensate for denied, degraded, intermittent or limited

connectivity—including low-bandwidth transmission, the need for applications to operate with variable levels of processing power, and being able to hold data and prioritize transmission when connectivity is available. We're unlikely to find a single solution to meet our needs as well as operate under our constraints; if we do, it will likely be unaffordable. To solve this problem, PEO C3T has begun a brand-new pathfinder project to tackle identified gaps like infrastructure and data availability. The aim is to build a foundation for enabling AI across our portfolio in blocks of capability.

UNMAGICAL REALITY

There's a running joke that artificial intelligence (AI) works like magic. You take all of your problems—inconsistent or nonexistent data, or even an overwhelming amount of data, unpredictable circumstances, the advancing speed of threats—you stuff them into a cauldron, sprinkle in some AI and the potion turns to gold—and it tastes great, too! We know it works because we've seen the demonstrations—sanitized data, locked in a castlelike data center, surrounded by a moat of clear distinction.

The reality is that there is no monolithic data castle and we need more than magic. Tactically, a castle is great for defending your home turf, but not such a great utility for an expeditionary force. In our rush to adopt AI, we defaulted to the acquisition model we all know—identify explicit requirements for AI, pass them off to a systems contractor, field the result and start fresh with the next set of requirements. We haven't thought much about what's different with AI, because we can't afford the luxury of time when we're in competition with nations less concerned about the ethics and implications of deploying this advanced technology.
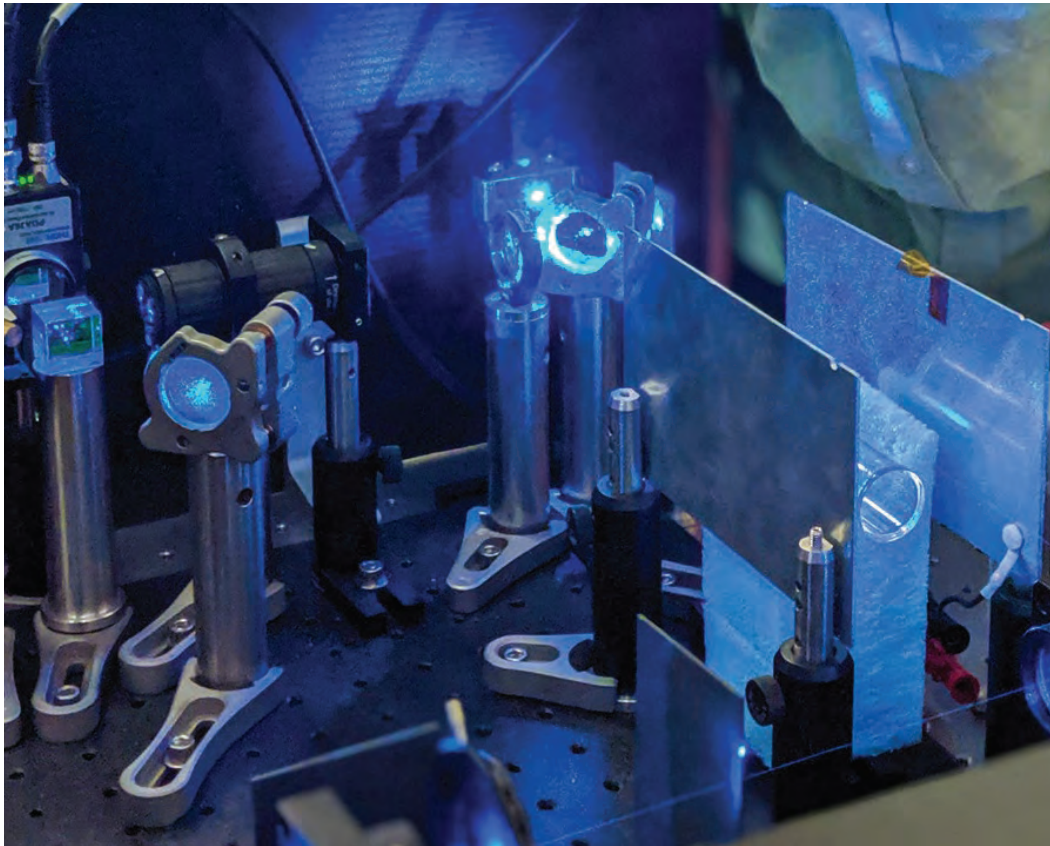
QUANTUM LEAPS

Researchers from the U.S. Army Combat Capabilities Development Command's (DEVCOM) Army Research Laboratory (ARL) and Tulane University combined machine learning with quantum information science to reconstruct the quantum state of an unknown system. (Photo courtesy of ARL)

In the early days of 2020, before the year was defined by the COVID-19 pandemic, PEO C3T convened the first of several AI-focused workshops to survey stakeholders—including requirements developers, testers, science and technology—to identify potential use cases for AI, as well as what the roadblocks would be to deploying AI in the field. The results of that workshop, further refined over the ensuing months, demonstrated that there was a lot missing from the bigger picture—like access to operational data and a lack of common infrastructure—to make AI effective and sustainable.

OVERCOMING ROADBLOCKS

The way to best approach these AI roadblocks, PEO C3T determined, was engagement through an AI pathfinder project. The project will spin out a series of AI-enabled capabilities that were carefully selected to force the PEO and its partners to work through the barriers discovered during the workshops. For example, we're developing applications that will be able to identify key information from an operational order and feed it automatically into a range of systems, but we've only been able to gain access to four examples of operational orders, and most

FIGURE 1
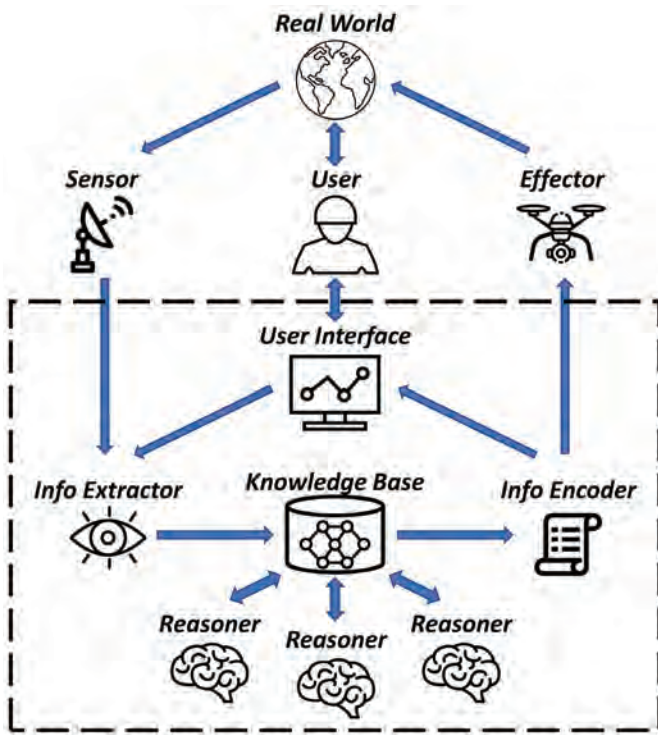
MAPPING ON PAPER
PEO C3T's potential design pattern for an AI reference architecture. (Image courtesy of PEO C3T)

of them are from the training environment, which may not fully represent conditions in the tactical environment. We need data-sharing agreements that span Army or DOD tactical operations. Currently, orders, communications and other types of content are owned by the combatant commands, and are thus classified with a need to know, limiting access for research and development. In addition to providing an opportunity to investigate, document and bridge these gaps, the pathfinder project will partner across Army organizations, leveraging ongoing efforts, to produce useful AI-enabled operational capabilities for Soldiers and leave behind new or enhanced development processes and infrastructure for future AI projects.

The PEO C3T AI pathfinder project takes a risk management approach to implementing AI infrastructure and functions in mission command applications, acknowledging the uncertainty in acquiring these capabilities in an acquisition system that was designed for tanks and bullets, and working with partners

A COMMON ONTOLOGY

As the basis for an AI reference architecture, PEO C3T is considering a design pattern (see Figure 1) to reduce stovepiped elements and rely on a shared data source that will alleviate data flow bottlenecks in an environment with denied, degraded, intermittent or limited connectivity. An information extractor pulls in data from an external system into a shared data resource, or knowledge base. The knowledge base stores data, including both static data like system performance specifications that don't change, and dynamic data like weather or the safety of a given route. Each reasoner is an algorithm that makes logical inferences about data; it reads data from the knowledge base, processes it and then pushes it back into the knowledge base where it can be consumed by any other reasoner. Finally, an information encoder makes data available in any format required by an external system. A "data fabric" may be used to connect the data of all systems in the portfolio, potentially providing the information extraction and encoding features.

The common data model that these software components share can be expressed as an ontology—a semantic model of data that describes how the data are related to one another. The ontology provides a unified basis for reasoners, so they no longer require specialized point-to-point data translators. For example, if a squad is required to travel 100 kilometers to its next destination in a vehicle that has a fuel economy of 10 kilometers per gallon, but the squad has only eight gallons of fuel remaining, a reasoner might identify that the squad does not have sufficient fuel to complete its mission. One vendor could develop a reasoner to validate mission resources and push the results into the knowledge base, and another vendor could read in that data to support course-of-action analysis.

By pushing data into a common data store and organizing it according to a common ontology, the information is always available to immediately support any new concept that a developer can dream up—without requiring months of additional software integration. While many applications will need this, there is no precedent for building and maintaining an ontology that is used by more than one system—it's not in anyone's mission, nor in their funding—but it will be absolutely necessary to sustain anything beyond a very narrow AI in the field.

across the domain to reduce that uncertainty through targeted AI development:

- The first phase, for the 2021 fiscal year, is to develop the ability to complete a medical evacuation medevac request from a chat window. The application will identify relevant information from a chat in progress and use it to generate a nine-line medevac call, allowing the user to review and send the call, rather than having to manually enter the information in a separate window. Even this relatively modest undertaking already requires access to training data and a limited ontology.
- The second phase will add situational awareness across text chat and voice communications, providing near-real-time alerts from the massive amounts of tactical communications traffic, based not only on keywords but also on related topics. This may allow a commander to get an alert when a specific location or target is mentioned, or identify trends such as heightened traffic in a particular location that may warrant attention.
- Future phases will add layers of complexity with mission validation reasoners and decision tools to optimize courses of action.

The pathfinder project will reexamine the acquisition process to determine the flexibility and infrastructure needed to enable AI across multiple systems. System requirements are written and executed narrowly, according to prescribed funding and schedule, and dependencies on undeveloped resources like a knowledge base or ontology to represent risk. However, this is a chicken-and-egg problem, because no one will build the common resources needed without the funds allotted through acquisition. Just as a smartphone application can be given permissions to use your phone's existing camera, microphone or date and time provided by the hardware and operating system without redundancy, an AI application that provides reasoning for, say, the ability to automatically validate mission requirements should be able to make use of a common knowledge base, existing reasoners, or data from

THE AI STEWARD
Patrick Riley, who is leading the DEVCOM Chemical Biological Center's artificial intelligence and machine learning initiative known as STEWARD, codes a software program that uses artificial intelligence and machine learning to advance his research. (Photo by Jack Bunja, DEVCOM Chemical Biological Center)

information extractors. As we move toward a more efficient AI, a more general AI that makes use of common resources, we need to support through acquisition an architecture that will allow plug-and-play upgrades and enhance competition in a rapidly evolving industry.

CONCLUSION
Each phase of the pathfinder project leaves behind infrastructure and development tools that will help the following phases and future AI enablers. If successful, the PEO C3T AI pathfinder will significantly reduce the time it takes to develop a new idea from concept to deployment, allowing PEO C3T to be much more responsive to the emerging needs of Soldiers.

There's no magic here. This quest is about hard work and collaboration. We're partnered across the enterprise, with Army Futures Command for requirements development and science and technology; the Rapid Capabilities and Critical Technologies Office; and federally funded research and development centers. Each partner brings a different perspective and a different part of the solution. We've left behind the castles in the sky and are

Most out-of-the-box AI solutions assume seamless connectivity between data input, data analysis and model output to point of use.

INTELLIGENT SURVEILLANCE
Petty Officer 2nd Class MaryJoy Ortiz, with Naval Mobile Construction Battalion 5, sets up a Gantz-Mountain Surveillance camera Dec. 7 at Naval Base Ventura County, California. The battalion augmented ground surveillance with the cutting-edge tactical surveillance system, using artificial intelligence and behavior analysis. (Photo by Petty Officer 1st Class Stephane Belcher, U.S. Navy)

maneuvering across the tactical landscape, knowing that we can use AI to adapt to new challenges.

For more information, contact Thom Hawkins at **jeffrey.t.hawkins10.civ@mail.mil** *or visit the website for PEO C3T at* **https://peoc3t.army.mil**, *or the Project Manager for Mission Command at* **https://peoc3t.army.mil/mc**.

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He is an Army-certified Lean Six Sigma master black belt and holds Project Management Professional and Risk Management Professional credentials from the Project Management Institute.

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Airmen from the 436th Aerial Port Squadron at Dover Air Force Base, Delaware, were on hand to load cargo bound for Ukraine on a DOD contracted aircraft June 16. The U.S. and Ukraine work to improve interoperability and readiness through foreign military sales. (Photo by Senior Airman Christopher Quail, U.S. Air Force)

COMPETITION IN COOPERATION

Unraveling the competition requirements associated with foreign military sales and international agreements.

by Dennis P. Longo

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

The Competition in Contracting Act (CICA) of 1984 requires, with limited exceptions, full and open competition in soliciting offers and awarding U.S. government contracts. But when the government receives a request from a foreign country for U.S. items or services under a foreign military sales agreement, and that agreement requests the items or services from a sole-source U.S. vendor, should CICA apply? One may reason that if the government is responsible to manage the transaction under federal regulations and the sole-source vendor is a U.S. company doing business directly with the U.S. government and not the foreign country, then CICA would apply and the foreign country's requirement should be competed.

That is not necessarily the case.

There are a few key elements of a foreign military sales action that will help the acquisition official to determine when the competitive procedures to fulfill CICA's requirement for full and open competition may apply.

BACKGROUND

The U.S. provides military equipment and services to foreign partners and allies to enable them to build or enhance their security capability. "Security assistance" is a group of programs authorized by the Foreign Assistance Act and the Arms Export Control Act, by which the U.S. may provide defense articles and defense-related services by grant, loan, credit, cash sales or lease to further national policies and objectives.

Foreign military sales (FMS) is the largest security assistance program. FMS is a mutually beneficial program. It nurtures long-term relationships with the U.S. military and foreign partners, including access to joint training

and doctrine, and increases opportunities for interoperability with U.S. forces.

Foreign military sales are often referred to as "FMS cases" and are conducted through formal contracts or agreements between the U.S. government and an authorized foreign government or international organization. The program includes government-to-government sales of defense articles or defense services from DOD stocks or through new procurements under DOD-managed contracts, regardless of the source of financing, according to the 2019 Security Cooperation Billing Handbook. Government-to-government sales are implemented by DOD. The Federal Acquisition Regulation and the Defense Federal Acquisition Regulation Supplement apply to all programs.

The three categories of cases that are executed via the FMS process are:

1. Partner nation-funded cases, whereby a partner nation submits a request to purchase U.S. defense articles or services. These represent the majority of cases.

2. Building Partner Capacity programs. These are security cooperation and security assistance activities that are funded with U.S. government appropriations and administered as cases within the foreign military sales structure. These programs provide defense articles and services to other government departments and agencies under the authority of the Economy Act or other transfer authorities. Their purpose is to build the capacity of partner nation security forces and enhancing their capability to conduct counterterrorism, counterdrug and counterinsurgency operations, or to support U.S. military and stability operations, multilateral peace operations and other programs.

NEXT-DAY AIR
In January, this United Arab Emirates air force C-17 aircraft departed Dover Air Force Base transporting cargo purchased by the country through FMS. (Photo by Senior Airman Eric M. Fisher, 436th Airlift Wing Public Affairs)

3. Foreign military financing-funded cases. Foreign military financing is a multiyear Title 22-authorized State Department program executed by DOD that provides grants and may provide loans to partner nations for the purchase of defense equipment produced in the United States, as well as for acquiring U.S. defense services and military training.

FMS PROCESS
The foreign military sales country trust fund, a separate account held by the U.S. Treasury, is used to fund FMS programs. Funds are deposited into the designated FMS country account by the foreign

A DOD agency is not required to provide for full and open competition when competition is restricted under an international agreement or treaty.

The foreign military sales process begins when an eligible foreign country or international organization makes its request via an LOR for information on defense articles or services, including training, that it is considering purchasing.

After determining that the government may accommodate the articles or services requested in the LOR, the U.S. responds to the foreign country with an LOA.

The LOA is the legal instrument used by the government to sell defense articles or services to a foreign country or international organization under authorities provided in the Arms Export Control Act. Signed LOAs are also referred to as "FMS cases."

Acceptance of the LOA occurs when the foreign country's official signs the document and provides any required funding to the corresponding FMS Trust Fund. Once accepted, the FMS case is implemented and becomes a government-to-government contract between the purchaser government or international organization and the United States.

Example. Government-to-government contract (sometimes "country-directed contract"):

An LOR has been submitted to the U.S. government by a foreign government for the purchase of an advanced military collective-protection system. As detailed in the LOR, the prime contractor for the system designated by the foreign government is ABC Industries. The government responds with an LOA.

There are five phases to the FMS process:

1. Assistance Request

- Partner country identifies requirements and drafts LOR with input from U.S. combatant commands, security cooperation organizations and implementing agencies.

2. Agreement Development

- Implementing agency prepares security assistance agreement with input from partner country.
- Defense Security Cooperation Agency (DSCA) and implementing agency obtain needed U.S. approvals and, when authorized by State, DSCA notifies Congress of proposed cases if required.
- DSCA reviews security assistance agreement and authorizes implementing agency to forward it to partner country for acceptance.

INTEROPERABILITY IN PRACTICE

A U.S. Soldier assigned to 2nd Battalion, 8th Cavalry Regiment introduces a German soldier to the U.S. M2A1 .50–caliber machine gun Jan. 16 at the Pabrade Training Area, Lithuania. American Soldiers and their German counterparts got hands-on experience with each other's weapon systems commonly carried onto the battlefield. (Photo by Sgt. Alexandra Shea, U.S. Army)

country or may be deposited from U.S. government appropriations.

The process requires that the FMS country issue a letter of request (LOR) for U.S. defense articles or services.

The U.S. government responds with a letter of offer and acceptance (LOA). The LOA is signed, whereupon funds are deposited into the trust fund and executed as a government-to-government contract.

- Partner country agrees to LOA and provides required funding or rejects LOA.

3. **Acquisition**

   - Implementing agency manages contracting or requisition of equipment and services specified in signed agreement.

4. **Delivery**

   - Partner country provides equipment delivery addresses.

   - Partner country may use freight forwarder or pay to use the U.S. military transportation system.

5. **Case Closure**

   - An FMS case may be closed when all materiel has been delivered, all ordered services have been performed and no new orders exist or are forthcoming.

   - Partner country and government meet to resolve outstanding issues and close case.

   - Implementing agency certifies case for closure and residual funds are made available for reuse.

INTERNATIONAL AGREEMENT COMPETITIVE RESTRICTIONS

Because the Competition in Contracting Act applies to the award and administration of contracts to fulfill the U.S. government's requirements and not the needs of a foreign country, a DOD agency is not required to provide for full and open competition when competition is restricted under an international agreement or treaty.

A contracting officer is prohibited from executing a contract action without providing for full and open competition unless the action is justified and approved. Under current Defense Federal Acquisition Regulation Supplement (DFARS) procedures, a justification and approval is not required when an LOA is executed between the foreign country and the government.

The requirement for a justification and approval to limit competition for contracts awarded under an international agreement was changed in the National Defense Authorization Act for Fiscal Years 1990 and 1991 under Section 817(a) of Public Law 101-189. That law permitted preparation of a document, rather than a justification and approval, to limit full and open competition. That document describes the terms and directions of a sole-source action requested by a foreign country or international organization. (Section 817(a) essentially relaxed the administrative burden

of preparing a justification to limit competition that otherwise would have been required under the Competition in Contracting Act.)

Implementing Section 817(a), the DFARS explains that a justification and approval is not required for international agreements if the head of the contracting activity prepares a document describing the sole source procurement for the partner nation.

In the Army FAR Supplement (AFARS), the document describing the sole source procurement for the partner nation referred to in the DFARS is "International Agreement Competitive Restrictions."

PSEUDO FMS

DOD and other agencies may have statutory authorization under the Foreign Assistance Act (FAA) of 1961, the Arms Export Control Act of 1976 or related programs to expend U.S.

DELIVERY STATUS UPDATE
Gen. Gustave F. Perna, then-commander of U.S. Army Materiel Command, received a briefing March 23, 2020, on how U.S. Army Security Assistance Command is managing challenges and successes executing its foreign military sales mission. (Photo by Tim Hanson, U.S. Army Security Assistance Command)

appropriated funds on "pseudo" FMS cases. These pseudo or "simulated" cases are so named because they are usually administered under the FMS structure, except that the U.S. government, not the partner nation, is the purchaser.

Building Partner Capacity, one of three FMS categories discussed previously, is composed of missions, programs, activities and authorities intended to improve the ability of other nations to achieve security-oriented goals shared with the United States. It is a crucial tool used by DOD and other government agencies in furtherance of U.S. national security objectives.

Building Partner Capacity programs are funded with U.S. government appropriations and administered within the FMS structure. These programs may provide defense articles or services to other government departments and agencies under the authority of the Economy Act or other authorities to build the capacity of partner nation security forces and enhance their capability to conduct counterterrorism, counterdrug and counterinsurgency operations, or to support U.S. military and stability operations, multilateral peace operations and other programs.

To execute the Building Partner Capacity program through the foreign military sales structure, a U.S. government "requesting authority," which is usually a combatant command, defines the Building Partner Capacity requirement composed of defense articles or services for a partner nation in a memorandum of request (MOR) and submits it to the DOD "implementing agency," such as the State Department, that will have overall responsibility to create the pseudo FMS case, execute it and ensure its proper completion. A foreign military sales case is a "pseudo FMS case" when the implementing agency

INTERNATIONAL COOPERATION
Capt. Anthony McClain and Chief Warrant Officer 3 Nicole Matteson, 108th Sustainment Brigade, meet with Iraqi Army Joint Repair Parts Command commander and an Office of Security Cooperation – Iraq foreign military sales logistics officer in February 2019. (Photo by Sgt. Socorro Delgadillo, Army National Guard)

or other executive agency of the federal government executes a pseudo (or simulated) LOA to provide defense articles or services to another U.S. government department or agency. That department or agency will then deliver the articles or services identified in the original MOR to the partner nation.

The government uses appropriated funds for the procurement of articles or services that are described in the pseudo LOA. The appropriated funds are placed in the FMS Trust Fund by the Defense Finance and Accounting Service (DFAS) and an authorized representative of the implementing agency will sign the "U.S. Signature" block on the pseudo LOA.

Because the LOA is not signed by the partner nation that will ultimately receive the articles or services, but serves to document the transfer of articles and services to the government requesting authority, it is often referred to as a "pseudo LOA" or a "pseudo FMS case."

Five phases of the pseudo FMS process:

1. Assistance Request

- U.S. combatant commands and in-country security cooperation organizations identify requirements and draft a memorandum of request with input from U.S. implementing agencies and partner countries.

THAT NEW CAR SMELL
Foreign military sales cases include all kinds of goods, from these five-ton trucks purchased by the Iraqi army, to ammunition, fighter planes, communication tools and more. (Photo courtesy of Multi-National Security Transition Command – Iraq Public Affairs)

2. Agreement Development

- Implementing agency prepares security assistance agreement.

- DSCA obtains needed U.S. approvals; State approves each security assistance agreement.

- DOD notifies Congress of proposed programs.

- DSCA approves final security assistance agreements and implementing agency accepts the offer.

3. Acquisition

- Implementing agency manages contracting or requisition of equipment and services specified in signed agreement.

4. Delivery

- In-country U.S. security cooperation organization provides equipment delivery addresses.

- Transportation is provided through the U.S. military transportation system or other government-procured transportation.

5. Case Closure

- Implementing agency initiates case closure and certifies case closure.

The pseudo LOA does not represent terms and conditions of an international agreement, but serves to document the purchase and transfer of articles or services to the government requesting authority and must be procured according to DOD acquisition regulations.

Procuring articles or services under a pseudo LOA is subject to the full and open competition rules of the Competition in Contracting Act at FAR Part 6.

Typically, the "only one responsible source" authority at Section 6.302-1 of the Federal Acquisition Regulation (FAR) may apply to pseudo FMS cases. The justification and approval prepared to support the procurement under the pseudo LOA must identify the implementing agency and the type of appropriated funds applied to the procurement as well as the authority, such as the Building Partner Capacity program, by which the pseudo LOA was created. The official approving the justification and approval should obtain a copy of the pseudo LOA to confirm that the requirements, terms, conditions and articles or services recorded in the pseudo LOA align with those documented in the justification and approval.

Application (generally):

When a government-to-government agreement between the purchaser foreign government and the U.S. government occurs, and the international agreement directs the sole-source procurement, FAR 6.302-4 applies and a formal justification and approval is not required. In this case, the head of the contracting activity prepares a document describing the sole-source procurement for the partner nation. The Army Federal Acquisition Regulation Supplement titles this document "International Agreement Competitive Restrictions."

When an implementing agency, such as the State Department, executes a pseudo (or simulated) LOA to provide defense articles or services on a sole-source basis to another government department or agency, and that department or agency will then deliver the articles or services to the partner nation, FAR 6.302-1 generally applies and a formal justification and approval is required.

BASIC CONSIDERATIONS

- Is the procurement funded by U.S appropriated funds or from the FMS country Trust Fund?

- Who initiated the procurement, a foreign country or the U.S. government?

- Are we delivering the item or service to a foreign country or the U.S. government?

For more information on international agreements and their impact on competition in contracting, go to **https://go.usa.gov/xAzuu.**

DENNIS P. LONGO is advocate for competition, task and delivery order ombudsman and senior procurement analyst at the Army Contracting Command at Aberdeen Proving Ground, Maryland.

STRATEGIC LOCATION

Airmen from the 436th Aerial Port Squadron move cargo onto a Kuwait air force C-17 Globemaster III at Dover Air Force Base Jan. 22. Dover supports approximately $3.5 billion worth of foreign military sales operations annually. (Photo by Senior Airman Christopher Quail, U.S. Air Force)

A member of the Army Acquisition Corps, he holds a bachelor's degree from the University of Baltimore and is Level III certified in contracting and acquisition. His assignments include acquisition specialist at the Program Manager for Chemical Demilitarization and procurement analyst at the U.S. Army Legal Services Agency. He served in the military from 1971 to 1973 at the Southern European Task Force – Italy and deployed to Iraq as a civilian in 2003. He authored the Defense Acquisition University (DAU) Continuous Learning DOD Purchase Card Tutorial in 2002, the DASA(P) Competition in Army Contracting course in 2019 and the DAU CON 0160 Competition in Contracting course in 2020. He has been teaching courses on competition in contracting since 2004. The first of the author's On Contracting articles appeared in the Winter 2020 edition of Army AL&T.

FOND FAMILIARITY
Soldiers assigned to 10th Mountain Division rehearse crew drills at Slagle training area, Fort Polk, Louisiana, in June before firing a M982A1 Excalibur precision munition from a M777 howitzer. The new, 70-km range projectile tested on Yuma Proving Ground is quite similar to the one currently in use. (Photo by Staff Sgt. Ashley M. Morris, 3rd Brigade Combat Team, 10th Mountain Division)

PRECISION SUCCESS

| PM CAS showed how an existing munition system could be pushed to meet an important Army modernization priority.

by Lt. Col. Thomas Jagielski

The Project Manager for Combat Ammunition Systems (PM CAS) conducted the first successful U.S. test of a 70-kilometer (km), or 43-mile, shot with a precision-guided munition on Dec. 19 at Yuma Proving Ground, Arizona. This is the first U.S. Army 155 mm projectile not assisted by a rocket, to achieve this distance with accuracy.

This successful demonstration represents an early win for the Long Range Precision Fires Cross-Functional Team and the Joint Program Executive Office for Armaments and Ammunition (JPEO A&A) by using a low-risk, high-payoff approach.

The live fire demonstration used the 155 mm Excalibur projectile from the U.S. stockpile and was the culmination of a campaign of learning on multiple systems. That campaign, which started in late 2018, was critical to understanding the interaction and limitations of the new 58-caliber Extended Range Cannon Artillery (ERCA), new propellant and the existing M982 Excalibur projectile. PM CAS and the Long-Range Precision Fires Cross-Functional Team needed to understand whether the existing Excalibur projectile could be safely fired from the ERCA system and defeat a point target at 70 km.

ACCUMULATE KNOWLEDGE

The undertaking was a joint effort that brought together PM CAS, the U.S. Army Combat Capabilities Development Command – Armaments Center and industrial partners to identify, understand and reduce risks for each system within the Excalibur, as well as the cumulative risk caused by interaction among systems. Higher muzzle velocities are required to extend the range. This is achieved by increasing the pressure in the chamber and cannon as well as increasing the length of the cannon, thereby increasing the amount of time the projectile is exposed to the increased pressure.

Currently fielded 39-caliber systems that use the Modular Artillery Charge System have maximum ranges that vary by projectile from 20 to 30 km. Potential adversaries over the past two decades have increased their cannon artillery capability to achieve ranges of 70 km. In order to engage targets at greater ranges, U.S. forces are compelled to engage with rockets, missiles or close air support. This demonstration is a large step toward regaining superiority with cannon artillery systems and freeing up assets to address other targets at even longer ranges.

"Not only did the test show the design robustness of a currently fielded Excalibur projectile to demonstrate lethality at extended ranges, it did so while maintaining accuracy, marking a major milestone in support of Long Range Precision Fires Cross-Functional Team objectives of achieving overmatch artillery capability in 2023," said Col. Anthony Gibbs, PM CAS's project manager.

SAFETY FIRST

A large test crew worked on the firing event in December. Every measurement and detail is checked before firing by the test crew—safety is paramount at Yuma Proving Ground. (Photo by Ana Henderson, Yuma Proving Ground)

TEST PREP

The ERCA program aims to field systems capable of accurately firing at targets more than 70 km away, a dramatic increase over the 30 km a currently fielded 155 mm howitzer shell is capable of when fired at top zone with rocket assistance. (Photo by Mark Schauer, Yuma Proving Ground)

IN THE FIELD

Soldiers of 10th Mountain Division assist with preparing an M982A1 Excalibur for a live fire event on Fort Polk, Louisiana, in June. (Photo by Staff Sgt. Ashley M. Morris, 3rd Brigade Combat Team, 10th Mountain Division)

Providing a longer range than that of potential adversaries is a significant combat multiplier for maneuver commanders. The Long Range Precision Fires Cross-Functional Team was established to tackle that objective. Its mission includes increasing lethality, improving rates of fire and enabling deep fires to shape the battlefield and set conditions for the brigade combat team's close and deep fight. Multiple programs, including new propellant charges, the self-propelled howitzer ERCA system with 58-caliber cannon, multiple projectiles with varying capabilities, and target identification and tracking systems, are under parallel development to increase range and reduce the time from target identification to effects on target.

GOOD MADE BETTER

The Excalibur 70 km demonstration is one of many steps to regaining U.S. supremacy in cannon artillery by 2023. For more than 15 years, the M982A1 Excalibur projectile has been the premier precision artillery munition in the U.S. arsenal. The projectile's reliability, robust structural design and the ability to course correct while maintaining both precision and accuracy were leveraged to achieve 70 km range during the test.

Throughout initial development and multiple years of operational use, Excalibur subsystems were proven to be effective with the current 39-caliber gun systems in the M109A6/A7 Self-Propelled Howitzer and M777A2 Towed Howitzer fleets. However, the increased pressure to achieve the muzzle velocity required for 70 km range from the longer 58-caliber ERCA cannon created harsher environments. As a result, the major focus became maintaining flight stability and safety.

"Testing in late 2019 revealed that the Excalibur warhead had sufficient margin

to survive this harsher gun launch environment," said Gibbs. He went on to say, however, "the team learned that the new firing conditions had reduced or eliminated some of the structural capacity due to increased loads at the subsystem and component level."

U.S. government and industry engineering teams collaborated in support of the campaign of learning to analyze the individual subsystems' operating margins, structural integrity and safety margins in order to ensure that the demonstration would be safe and effective in the new ERCA system. With support from the Munitions and Weapons Division at the U.S. Army Test and Evaluation Command Yuma Test Center, PM CAS and the Combat Capabilities Development Command – Armaments Center, along with Excalibur manufacturer Raytheon, its subcontractors and other industry partners, completed the necessary development and testing to reduce the risk and make the Excalibur 70 km demonstration possible.

CONCLUSION

"Today's demonstration marks a significant step forward in filling a capability gap in our Army of accurately reaching out to 70 km with cannon artillery. It's the product of tremendous teamwork and initiative by multiple organizations and our industry partners to bring new technology to our artillery forces and regain overmatch with our adversaries," said Brig. Gen. John Rafferty, Long Range Precision Fires Cross-Functional Team director.

By leveraging the robust design of the current Excalibur, a GPS coordinate-seeking projectile with an average miss distance—how far from the target the round detonates—of less than two meters, Excalibur also represents a low-investment, high-payoff approach to meeting objectives in support of the Army's top modernization priority, long-range precision fires.

For more information on Excalibur, go to **https**://jpeoaa.army.mil/jpeoaa/.

LT. COL. THOMAS JAGIELSKI is the product manager for Precision Attack Cannon Munitions. His responsibilities include management of the M982 Excalibur and the development of cannon-delivered area effect munitions, which is a replacement for dual purpose improved conventional munition. He has an MBA from Texas A&M University – Central Texas and a B.S. in chemistry from the University of Arizona. He is certified Level III in program management and Level II in test and evaluation.

A CLOSER INSPECTION
Before firing the projectile from the ERCA during the landmark testing event in December, members of the test team inspect the item. (Photo by Ana Henderson, Yuma Proving Ground)

SUPERCHARGED
A Soldier carries XM654 Supercharge propellant. (Photo courtesy of Picatinny Arsenal)

MIKE COWPERTHWAIT

COMMAND/ORGANIZATION: Program Executive Office for Aviation, Cargo Helicopters Project Management Office

TITLE: Deputy product manager

YEARS OF SERVICE IN WORKFORCE: 17

YEARS OF MILITARY SERVICE: 7

AAW/DAWIA CERTIFICATIONS: Level III in program management and engineering, Level II in international acquisition

EDUCATION: M.A. in human resources development, Webster University; B.S. in management, concentration in systems engineering, U.S. Military Academy at West Point

AWARDS: Civilian Service Commendation Medal, 2020; Civilian Service Achievement Medal, 2014; Army Aviation Association of America Order of Saint Michael Bronze Award, 2019; Association of the United States Army Redstone-Huntsville Chapter Department of the Army Civilian of the Year, Technical Management category, 2020

GET COMFORTABLE BEING UNCOMFORTABLE

Remember that scene from the holiday classic "A Christmas Story," where Ralphie daydreams that his schoolteacher, Miss Shields, is so enraptured with his writing assignment that she turns to the blackboard and writes 'A+++++,' all the way across? That's actually a more apt description of Mike Cowperthwait's personality type, according to his colleagues. "Yeah, some of the guys on my team like to joke that I'm A-plus-plus-plus," he laughed. Cowperthwait is the deputy product manager for the CH-47F Block I Cargo Helicopter at the Program Executive Office (PEO) for Aviation, a job he relishes. As a former Chinook pilot himself, he is most at home in the military aviation community. "I just can't imagine being anywhere else," he said.

He describes himself as driven and goal-oriented, and as someone who always tries to finish what he starts. "I get a great deal of satisfaction from continuing what I started in the Army almost a quarter-century ago when I served as an aviation officer and CH-47D pilot," he said. "I've spent my entire adult life in and around Army aviation and it's a tremendous honor to work with the finest workforce in the world on the premier heavy-lift cargo helicopter in existence." As the deputy product manager, he works with a 55-person cross-functional organization responsible for the production, delivery, new equipment training and foreign military sales activity for the Chinook and CH-47F Block I Training Aids, Devices, Simulators and Simulations (TADSS).

Through his professional experiences, Cowperthwait has learned the importance of the ancient Greek aphorism, "know thyself." After struggling to achieve work-life balance earlier in his career, he is now open about having a "results-driven, borderline obsessive work ethic," and he asks his supervisors to hold him accountable. "I'm getting better about delegating tasks and scheduling downtime," he said. He recalls the advice of his uncle, another former military pilot, who imparted some wisdom to Cowperthwait at the very beginning of his Army career. "You're going to want to do heroic things, but you have to remember, it's not just you." The crew and all the passengers onboard the aircraft are "someone's son, daughter, father, mother." In every decision, his uncle urged him, "Mike, just remember that you're taking all those people with you." He now understands how that advice applies outside the cockpit, as well—not just as a matter of their immediate physical safety, but their professional development and well-being, too.

"When you're comfortable, you're not growing."

As he is mindful of setting boundaries for himself, he encourages others to take an active role. "Now, it's much less about me being the hero," he said. "Now, it's about setting the conditions so that my organization, the members of my team, can be the hero."

What advice does he give to junior acquisition workforce members? "Be patient," he said. "My take on career progression now is that it occurs at the perfect intersection of opportunity and preparedness. You can only directly impact one of those, so make yourself as ready as possible for when an opportunity presents itself." And then, when presented with that perfect opportunity, he says to jump. "The majority of the opportunities that my supervisors and mentors have steered me toward were ones that I wasn't necessarily looking for and, honestly, a few were ones that didn't really appeal to me at first," Cowperthwait said. "I was content in my comfort zone and not looking to move, but in hindsight that's exactly what I needed to do." He had to learn to welcome change—to be comfortable with being uncomfortable. "When you're comfortable, you're not growing," he said.

"I've been extremely blessed to have worked for supervisors and mentors who have all made a practice of plucking me out of my comfort zone to expose me to progressively challenging opportunities." One such experience came in 2012, when he had the opportunity to take on a high-visibility, high-priority foreign military sales (FMS) effort involving the United Arab Emirates. "That opened the door to some truly remarkable FMS assignments in another PEO Aviation program office a few years later," he said.

Because of those experiences, he now recommends the international acquisition certification under the Defense Acquisition Workforce Improvement Act to others in the Army Acquisition Workforce. " 'Standard' acquisition is hard enough, and the international acquisition program introduces the added complexities of the security assistance operation," he said. "I would absolutely recommend the program to anyone in the workforce, not just those directly working FMS programs. Through the course of their careers, everyone is eventually going to touch or work in support of an FMS program, and I think it would help build the awareness and context of what those programs are and how they fit into the big picture." In other words, embrace the challenge, learn new skills and get comfortable being a little uncomfortable. Sage advice from someone who walks the walk.

—*ELLEN SUMMEY*

TOP HONOR
Col. Matt Mingus, USA (Ret.), left, and Col. Rick Bowyer, USA (Ret.), right, present Cowperthwait with the 2020 Association of the United States Army Redstone-Huntsville Chapter Department of the Army Civilian of the Year award. (Photos courtesy of Mike Cowperthwait)

FOREIGN ASSIGNMENT
Cowperthwait in Plovdiv, Bulgaria, in 2018 when he worked on the Afghan Air Force Mi-17 program.

END OF AN ERA

The Chemical Biological Protective Shelter acquisition program produces the final shelter, making way for modernization.

by Gregg Buehler

HERE TO HELP

A combat medic with the 135th Area Support Medical Company, Pfc. Nicole Atkinson, drives a Chemical Biological Protective Shelter M8E1 Light Medium Tactical Vehicle on March 25, 2020, while preparing for potential COVID-19 response missions in Waukesha, Wisconsin. (Photo by Spc. Emma Anderson, Wisconsin National Guard)

After more than 20 years of production, the Chemical Biological Protective Shelter (CBPS) program has produced its last system. The shelter is a mobile, self-contained, rapidly deployable, chemically and biologically protected shelter that provides a contamination-free, environmentally controlled medical treatment facility for U.S. Army Role I and II medical units. (In DOD's "Emergency War Surgery," there are five levels, or roles, of care. Role I is the lowest and provides immediate first aid on the scene. Role II increases the capabilities and includes limited inpatient care. Role V is the highest.)

The shelter is versatile enough to be used by field surgeons, physician assistants and field medics for initial triage, medical treatment and possible evacuation. The shelter does not provide the medical equipment that is used for treatment. It provides the shelter; the heating, ventilation and cooling equipment; the chemical biological, radiological and nuclear filtration equipment; generators for powering the system components; means for storage of standard Army medical equipment sets; and the vehicle used for transportation and mobility.

GIMME (BETTER) SHELTER

Production of the first variant began in 1999. It provided medical shelter system support to the Army and Marine Corps units in the then-active conflicts in Iraq and Kuwait. In 2006, the development of the second variant commenced to address user requests for added capability. Production of the second variant began in 2010 and continued through 2020.

Recent shifts in Army modernization priorities ended CBPS production in order to redirect funding to these higher-priority efforts.

The CBPS effort began in the late 1980s in response to the need for a replacement for the 1960s-era M51 Collective Protection Shelter (CPS) system. The trailer-mounted M51 suffered from excessive deployment time requirements, minimal floor space in which to perform medical operations, and a lack of a dedicated prime mover. Often, the M51 CPS trailer would simply be left behind in the motor pool since military units lacked enough available vehicles to tow the trailer into the conflict area. The CBPS effort addressed these issues by designing an integrated system that was mounted on a Humvee, which could be quickly deployed, provided its own onboard system power generation, increased the usable floor space and improved overall system reliability.

SHOWING OFF
The CBPS on display at the 2019 Army-Navy football game. (Photo by Stephen Lusher, Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense)

For more than 20 years, the CBPS program produced 496 CBPS systems that provide the warfighter with a clean, toxin-free workspace in which medical operations could be performed during both normal operations as well as during chemical and biological contaminated events.

PANDEMIC RESPONSE
Sgt. Michelle Baum, a combat medic with the 135th Area Support Medical Company, walks next to a Chemical Biological Protective Shelter M8E1 Light Medium Tactical Vehicle on March 25, 2020, while instructing a U.S. Army Motor Vehicle Operator's test in preparation for potential COVID-19 response missions.
(Photo by Spc. Emma Anderson, Wisconsin National Guard)

CBPS development activities concluded in the late 1990s with the completion of the CBPS M8 design.

A CHANGE OF PLATFORMS

The CBPS M8 variant entered limited-rate, urgent production in the late 1990s and provided systems to support ongoing operations in the Middle East at the time, where it saw usage in medical, command and control, and several other applications. Designed as a rapidly deployable medical shelter system, CBPS provided a contamination-free, environmentally controlled medical shelter where U.S. Army medical personnel could treat patients in a chemical-biological contamination environment without the encumbrance of wearing chemical-biological personal

protective equipment, such as mission-oriented protective posture gear.

The program entered full-rate production in 2002, eventually producing 197 CBPS M8 systems that were globally deployed to Army units. Lessons learned from these deployments and the ongoing conflicts' emerging improvised explosive device threat resulted in the program transitioning from the Humvee-mounted CBPS M8 variant to the current CBPS M8E1 design.

The CBPS M8E1 variant is mounted on a Medium Tactical Vehicle to provide ballistic protection for the crew while in mobile operations to counter the improvised explosive device threat. The CBPS M8E1 design further increased the shelter's

usable floor space while simultaneously improving the system's filtration, environmental control, power generation and load-carrying capabilities.

The transition from active production of the CBPS M8 variant to development of the CBPS M8E1 variant occurred in the mid-2000s, with commercial production of the CBPS M8E1 design beginning in 2010. In 2016, deliveries from the commercial contract ceased and an organic manufacturing capability was established at Pine Bluff Arsenal, Arkansas.

At the conclusion of CBPS-M8E1 production in the 2020 fiscal year, the CBPS program had produced a total of 299 CBPS M8E1 variants. The majority of

SYSTEM UPGRADED
A Chemical Biological Protective Shelter M8E1 sits fully deployed by the 628th Forward Surgical Team, on a training site during the Global Medic exercise July 13 at Fort Hunter Liggett, California. The shelter's design increased its usable floor space and improved systems filtration, environmental control, power generation and load-carrying capabilities. (Photo by Spc. Justin Snyder, U.S. Army Reserve)

these systems have been fielded in locations both inside and outside the continental United States, with the remainder ready to be fielded once the base-closure and travel restrictions imposed by the global COVID-19 pandemic are lifted.

For more than 20 years, the CBPS program produced 496 CBPS systems that provide the warfighter with a clean, toxin-free workspace in which medical operations could be performed during both normal operations as well as during chemical and biological contaminated events. Without the CBPS system, the Army would have no means of providing medical operations in a chemical and biological contaminated environment.

Now that the CBPS program production has ended, the program will transition to sustainment. The overall system sustainment activities transition to the Tank-automotive and Armaments Command's Integrated Logistics Support Command, Chemical and Biological Defense Product Support Integration

Directorate – Collective Protection and Decon Team in Warren, Michigan. Support for the system's control system software package is provided by the Armament Software Engineering Center at Picatinny Arsenal, New Jersey. The acquisition program's staff will move on to other programs and functions.

For more information, go to **https://asc.army.mil/web/portfolio-item/cbd-chemical-biological-protective-shelter-cbps-m8e1/**.

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UNDERSTANDING ACQUISITION:
THE **COLOR$** OF MONEY

The first thing to understand about the colors of money is that there are no colors and no actual money, and it only gets more complicated from there.

The financial management of defense acquisition is so complex and unintuitive that almost any analogy breaks down quickly. An overview of what "the colors of money" means would—in a classroom at the Naval Postgraduate School or Defense Acquisition University—be part of a much larger, several-hours-long discussion on defense financial management. Colors of money is shorthand for categories of budget appropriations. Colors of money is a single dimension of defense financial management that itself is multidimensional and next to impossible to illustrate in two dimensions. The graphic that follows is necessarily simplified and does not address every potential complication.

Colors of money, like lots of concepts in defense-speak, is misleading but not inaccurate. There is, in fact, no *actual* money. Neither are there colors. Congress gives DOD budget authority, that is, the authorization to obligate the government to pay bills with appropriated funds.

There are five colors of money, but color is only one dimension. Another dimension is time. Each color has a use-by date. Another dimension is the different ways that Congress and DOD slice and dice the different categories of budget authority. Colors of money is a way of expressing and controlling what a budget authority may and may not be used for. It is accounting, but also a way to understand how Congress and DOD talk to one another. If you look at the research, development, testing and evaluation budget, that tells you something about the Army's modernization budget. It's not "the modernization budget," it's just what Congress has said that the Army can spend toward its modernization goals in terms of research and development of new capabilities. Likewise, procurement is

another side of the Army's modernization budget, as these two comprise the principal categories for acquisition managers.

Other terms that you hear associated with the colors of money are—in no particular order—the POM, PPBE, FYDP (often pronounced "FIE-dip"). The POM is the program objective memorandum, which is a product of the programming part of PPBE—the planning, programming, budgeting and execution process. FYDP, the Future Years Defense Program, is the classified database spanning 10 years of all funding categories, projecting DOD's needs in each.

Those with an in-depth understanding of defense financial management find it virtually impossible to talk about the colors of money without getting into PPBE, POM and FYDP and other things, because they're all linked and interdependent.

PPBE—a topic for another day—is where it all starts. PPBE, according to the Congressional Research Service, is intended "to establish a framework for *connecting strategic objectives with resources.*" (Emphasis added.) The pea-soup clarity of the terminology masks another temporal dimension to the defense financial management profession in that it is a constant and nonstop annual process employing many thousands of experts.

—*JOHN DILLARD, Col. USA (Ret.) and recently retired senior lecturer at the Naval Postgraduate School*

—*STEVE STARK, senior editor, Army AL&T*

UNDERSTANDING ACQUISITION:
THE COLOR$ OF MONEY

MAJOR FORCE PROGRAMS

1. STRATEGIC FORCES
2. GENERAL PURPOSE FORCES
3. INTELLIGENCE AND COMMUNICATION
4. MOBILITY FORCES
5. GUARD AND RESERVE FORCES
6. RESEARCH AND DEVELOPMENT
7. CENTRAL SUPPLY AND MAINTENANCE
8. TRAINING, MEDICAL AND OTHER
9. ADMINISTRATION AND ASSOCIATED ACTIVITIES
10. SUPPORT OF OTHER NATIONS
11. SPECIAL OPERATIONS FORCES

DOD APPROPRIATIONS

7%

14%

+/-1%

* All percentages are approximate and based on the Army budget request for the 2021 fiscal year ~$178 billion

RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E) appropriations finance efforts in developing equipment, materiel or computer software. They also fund developmental test and evaluation performed by government entities and contractors to develop equipment, materiel or computer application software, which includes operational test and evaluation. RDT&E efforts may include purchases of test articles, weapons, equipment, components and materials. Also included are services to develop and test systems, which could be IT systems or weapon systems. Funds may be used for both investments (e.g., laboratory test equipment) and expenses (e.g., salaries of civilian employees at research and development-dedicated facilities). This category has a two-year obligation life.

PROCUREMENT finances investment items, and covers all costs necessary to deliver a useful item intended for operational use or inventory. Within procurement, there are appropriations accounts that include:

a. Shipbuilding and conversion Navy.
b. Aircraft procurement Air Force.
c. Missile procurement Army, etc.

Procurement funds are typically used for system acquisition (production), modifications, major service life extension efforts and initial spares, often including costs of fabricating and installation of modifications to existing items, and comprise "investments." These procurements have a three-year obligation life.

Most program managers (PMs) touch only procurement and RDT&E money. However, PMs might have some military construction money for facilities that may need to be constructed. They also might have operations-and-maintenance money to pay office salaries, travel and other expenses.

Budget authority is a bit like a line of credit that enables paying bills and "obligating" the government to pay for programs in every stage of development. Unlike lines of credit, budget authority is restricted to the purpose for which it was procured.

(RDT&E) BUDGET ACTIVITY

1. BASIC RESEARCH
2. APPLIED RESEARCH
3. ADVANCED TECHNOLOGY DEVELOPMENT
4. ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES
5. SYSTEM DEVELOPMENT AND DEMONSTRATION
6. RDT&E MANAGEMENT SUPPORT
7. OPERATIONAL SYSTEM DEVELOPMENT

42%

36%

COMPONENTS

· ARMY

· AIR FORCE

· NAVY

· SPACE FORCE

· DEFENSE AGENCIES

· OTHER

MILITARY CONSTRUCTION appropriation receives considerable attention from Congress, and is enacted separately from the defense appropriations act. It funds the costs of major construction projects such as bases, facilities, military schools, etc. Project costs include architecture and engineering services; construction design; real property acquisition costs; and land acquisition costs necessary to complete the construction project. MILCON is considered an "investment" account. Military construction has a five-year obligation life.

OPERATIONS AND MAINTENANCE OR SUSTAINMENT funding does not finance investments, but things with benefits derived for a limited period of time, i.e., expenses. Examples of costs financed by operations and maintenance funds are headquarters operations, civilian salaries and awards, travel, fuel, minor construction projects of $750,000 or less, expenses of operational military forces, training and education, recruiting, depot maintenance, spare parts, base operations support, etc. Operations-and-maintenance funding has a one-year obligation life. Adapted from M. Walsh and G. Land. Teaching Note, Building the Program Budget, DAU, Feb. 2010.

MILITARY PERSONNEL is considered an expense account and funds the costs of salaries and compensation for active   military and National Guard personnel as well as personnel-related expenses such as costs associated with permanent change of duty station moves, training in conjunction with those moves, subsistence, temporary lodging, bonuses, and retired pay accrual. Military personnel funding has a one-year obligation life.

°COOL
UNDER PRESSURE

As the U.S. and other major world powers set their sights on the high north, a senior U.S. diplomat is focused on keeping things cool in the Arctic.

by Ellen Summey

CHILLING EFFECT
A CH-47F Chinook assigned to 101st Airborne Division (Air Assault) perches on a mountain in October in the German Alps. As the U.S. revamps its Arctic capabilities, it must work with its allies around the world. (U.S. Army National Guard photo by Staff Sgt. Garrett L. Dipuma)

There's something peculiar about the finish line of a cross-country ski race. Or rather, what the competitors do when they cross it. They collapse onto the snow in rather dramatic fashion, gasping for air, after expending every last ounce of energy to complete the course. "I didn't do that," recalled Jim DeHart, the State Department's U.S. Coordinator for the Arctic Region, when discussing his participation in the famous Norwegian Birkebeiner ski race in March 2018. "I was so cold, I was afraid I would break in half when I hit the ground. Plus, I knew I would never get up."

DeHart, a career diplomat who was then chargé d'affaires (the senior embassy representative in the absence of an ambassador) for the U.S. Embassy in Oslo, had made it his goal to complete the enormously difficult 54-kilometer (33.6-mile) race during his three-year assignment in Norway—a country renowned for its love of cross-country skiing. "Nothing would make me more relatable to a normal Norwegian than completing the Birkebeiner," he said in a January telephone interview with Army AL&T. "I thought they would give me a key to the city or something." (Full disclosure: the author also worked at the embassy during DeHart's tenure.)

That year, the race was almost canceled because of extreme cold—it was -24 degrees Celsius (-11 Fahrenheit) and the regulations called for cancellation at -25 degrees. "I did the race in probably the slowest time you can do it without getting pulled off the course," he said. "If you don't keep up a certain minimum pace, they will put you on the 'bus of shame' back to Lillehammer." But he made it. Barely. "As darkness was falling, I got to the finish line more than eight hours after I started—which is about five and a half hours behind the fastest skiers." He later quipped that he had performed a true feat of athleticism, since the faster competitors only skied for two and a half hours, while he completed "a grueling eight-hour slog."

COOPERATION IS KEY

Whether because of his demonstrated mastery of Nordic skiing or his reputation as a skilled and principled diplomat (likely the latter), in July 2020 DeHart was appointed as U.S. Coordinator for the Arctic Region. "The State Department decided that it was important to ensure that we have a balanced approach toward the Arctic," DeHart said. "We have people working on the Arctic, from a security perspective, economic perspective, scientific research and environmental protection, and the secretary and other senior leaders wanted to make sure that we're pursuing all those efforts in a well-coordinated, balanced way and bringing all of our tools to the table."

The effects of climate change are perhaps more dramatic in the Arctic than anywhere else on Earth—satellite imagery reveals that sea ice is declining at a rate of approximately 13 percent each decade. And as the ice recedes, change is coming. "The Arctic region is really fascinating. I don't think you can find another region of the world that is changing so quickly, physically and environmentally," DeHart said. "Because it is warming so dramatically, it's opening up the terrain to new players and new activities." The region is still relatively untouched, when compared with other parts of the world, he said. "But that is going to change. There's going to be more tourism, there's going to be more commercial activity, investment, resource extraction and also countries that are preparing themselves from a military perspective."

MEDIA BLITZ
Jim DeHart, U.S. coordinator for the Arctic, sits down for an interview with a Swedish news reporter for TV4 Nyheterna on Sept. 24. (Photo by U.S. Embassy Stockholm, Sweden)

A HISTORIC RACE
The Birkebeiner ski race is a cross-country race starting at Rena and finishing in Lillehammer, Norway. The winter 1206 journey of Birkebeiner loyalists, Torstein Skevla and Skjervald Skrukka, to save the infant heir to the Norwegian throne, Håkon Håkonsson, inspired the race. Since then, the trip over the mountains has challenged hundreds of thousands of Norwegians. (Photo by pixabay)

"Change is coming to the Arctic, and it's going to be for better or for worse. We have to be involved and we have to be present, to make sure it's for the better." DeHart said that his goal, and the goal of the State Department, is for the Arctic to remain peaceful as those changes take place. "We want to keep it low tension and high cooperation, particularly among the nations that are in the Arctic region. And that we make sure that there's no threats emerging to the U.S. homeland."

The eight nations of the Arctic—Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States—make up the Arctic Council, the principal international cooperative forum for addressing issues related to the Arctic. Established in

1996, the council is primarily concerned with sustainable development and environmental protection, rather than hard security. In fact, its mandate, outlined in the Ottawa Declaration, explicitly omits any military security.

"We all want the Arctic to be a region of peaceful cooperation, where we're focused together on scientific research, emergency preparedness and on sustainable economic growth," DeHart said. "But the reality is, that it's also NATO's northern flank. The Arctic is a geographic entryway to the United States, to our homeland, and it connects to the North Atlantic, where we have key lines of communication between the United States and Canada and our European allies. So, there's a really important security

SURVEY SAYS
DeHart, left, then an adviser from the U.S. State Department; Jim Hoffman, right, an agricultural adviser from the U.S. Department of Agriculture; and members of the Panjshir provincial reconstruction team meet with Afghan locals on a hilltop in the Anaba District of Panjshir Province, Afghanistan, in January 2010. Team members were surveying a possible location for a water reservoir. (Photo by Sgt. Teddy Wade)

SMALL-SCALE POWER
Jim DeHart, the U.S. State Department and Panjshir provincial reconstruction team director; Sir William Patey, the British ambassador to Afghanistan, and Tom Dodd, the deputy British ambassador, look over a micro-hydroelectric plant in May 2010. (Photo by Sgt. John Young, Combined Joint Task Force)

dimension to the Arctic and we have to be cleareyed about that."

"DOD and the different service branches are key to this whole effort," DeHart said. "Working together with our allies, exercising together with our allies, developing capabilities together and ensuring that we're interoperable with each other, these are all really important to security and peace in the Arctic. We need to have the right capabilities and the right presence."

DIPLOMACY MEETS DEFENSE
For someone who didn't serve in the military, DeHart has a lot of experience working with Army and DOD partners. In addition to his recent tour as assistant chief of mission for the U.S. Embassy in Kabul, Afghanistan, in 2018 and 2019, he was the State Department's senior adviser for security negotiations and agreements in 2019 and 2020—both memorable experiences he could talk about at length. DeHart also holds the distinction of having directed the only civilian-led U.S. provincial reconstruction team (PRT) in Afghanistan in 2009 and 2010.

"I have a great memory, traveling on horseback into the Hindu Kush, the mountain range that spans Afghanistan, when I was working with the PRT there in Panjshir Province," he said. The U.S. had rented horses for the trek, which covered 12,000 feet of elevation with no passable roads. "That was exciting—a real adventure." DeHart said they covered very rugged, snowy terrain, riding roughly four hours each way. "We were going up there to check out progress on a school that our PRT was building, to see how they were doing." The visit allowed DOD engineers to examine the ongoing construction, ensuring safety for the workers and monitoring the project's development.

One of his fondest memories involves accompanying the late Sen. John McCain on a tour of Norway, just after starting his job there in Oslo. "This was five days after I started in Norway, in late summer 2015," DeHart recalled. "I was nervous because I didn't really know the place yet and I didn't really know the people yet. I think I had my first meeting with the Norwegian prime minister and foreign minister and defense minister, alongside John McCain." McCain was widely admired in Norway, and DeHart said that government officials showed their respect by organizing a high-profile tour for him. "The Norwegians pulled out all the stops for him." They scrambled their F-16 fighter jets for an intercept, provided a fighter escort for McCain's flight and demonstrated various aircraft rolls and tactical maneuvers. The group was then treated to a high-speed trip on a Zodiac inflatable boat to go see members of the Norwegian special forces conducting training in a remote location.

> **"Change is coming to the Arctic, and it's going to be for better or for worse. We have to be involved and we have to be present, to make sure it's for the better."**

Perhaps the most poignant part of the tour, DeHart found himself sitting with McCain on a flight across the country, and heard him tell the story of his capture and imprisonment in North Vietnam. "Sitting on the Beechcraft, together with the Norwegian deputy foreign minister, and hearing Sen. McCain talk about his captivity in Vietnam, and tell us that whole story—I felt incredibly lucky to hear

that piece of history firsthand. To be there with him, hearing that, was a wonderful moment."

As a career diplomat, DeHart has the opportunity to meet and work with political leaders and newsmakers from around the world. But some of his most moving experiences involve rank-and-file members of the U.S. military. In 2016, he was asked to be the guest of honor at the Marine Corps birthday ball hosted by the embassy's small Marine Corps guard detachment in Oslo. "That was deeply humbling for a State Department officer, to be in the midst of all that tradition and the great pride that is in the room. To have the chance to speak to the whole group and be a part of that, was super memorable for me."

RULES OF ENGAGEMENT

What is diplomacy? Is it all about being politically correct? Compromising and

SPLISH SPLASH
One of several boats transporting Deputy Secretary of Defense Bob Work and his staff across the fjords from Norwegian Joint Headquarters to Bodø, Norway, encounters rough, soaking seas Sept. 9, 2015. DeHart and Sen. John McCain took a similar ride on their tour, just weeks earlier. (Photo by Glenn Fawcett, DOD)

A NATURAL FIT

"It was like going home," DeHart said of his three-year stint in Norway. "It was like reliving my childhood in a way, because I was sort of a nature geek growing up in Oregon. And in Norway, when I wasn't working, all I did was hike and fish and camp and cross-country ski—I felt like I was reliving a part of my part of my childhood."

He had followed his parents to a career with the State Department—they met in Taiwan in the early 1960s, when they were both working in the Foreign Service. "When they got married, my mother had to resign, which was the requirement back in those days," he said. "So she resigned to become a wife and raise a family." His father continued working as a diplomat and spent nearly his entire career overseas. "My sister and I spent the first 10 years of our lives overseas in Australia, Hong Kong, the Dominican Republic and Tijuana, Mexico, before he retired to Oregon," DeHart recalled.

The family then settled in central Oregon and DeHart attended school in Bend, which was something of a logging town at the time—a fact that often lent itself to comical misunderstandings. "When I would mention that I grew up in the Foreign Service, my schoolmates usually thought I was saying my dad was a park ranger in the Forest Service. I would say, 'You know, the Department of State,' and they would say, 'Oh, the State of Oregon.' And then I just kind of stopped trying," he chuckled.

After high school, DeHart earned a B.A. from Gonzaga University in Spokane, Washington, before completing an M.A. in international affairs from the Elliott School at George Washington University. A year later, he began his career with the State Department. His first assignment took him to Istanbul, followed by assignments to Melbourne, Australia, Brussels and Afghanistan. Then came the three-year assignment in Norway, which was a career highlight for him, and helped prepare him for his current role as U.S. Coordinator for the Arctic Region.

seeking middle ground? Making friends and never disagreeing? How is diplomacy different than military service? "I have lots of thoughts on this," DeHart said. "Diplomacy is basically managing relations with foreign governments, or sometimes with entities outside of government, to advance U.S. interests." Though people sometimes think diplomacy is just "being nice," DeHart said it's far more complex than that.

"Being polite—that's another definition of being diplomatic. But it's not always about being nice or polite. Sometimes, diplomacy is delivering a very hard message and being deliberately not very nice, delivering sometimes a threat or a warning, if it's required for the situation. And it's fundamentally about informing the other governments, and it's a lot about ensuring that there were no misunderstandings or miscalculations. Because, if the other party misunderstands the situation, that in itself could lead to conflict." In essence, he said, diplomacy is about clear communication. There is sometimes a misconception that diplomats must lie or stretch the truth, DeHart said, but he strongly disagrees. "There are a lot of things that diplomats can't say, but diplomats should never lie, because credibility is everything." It's all about clarity, he said. "That's diplomacy, in my book."

In fact, he said, one of the most important communication skills for a diplomat is not speaking—but listening. "It's so important to be a clear communicator, and a big part of that is listening. I've always found that, in the most important conversations or negotiations I've had, I did a lot more listening and a little bit of talking." Doing the reverse, mostly speaking and rarely listening, will cause your core message to be diluted or entirely lost, he said.

"The Arctic region is really fascinating. I don't think you can find another region of the world that is changing so quickly, physically and environmentally."

IT'S COLD OUT THERE

Soldiers in the far north have to protect themselves from extreme cold, and must know when to seek medical treatment—for themselves or for others who may be unable.

HYPOTHERMIA

When exposed to cold temperatures, your body will begin to lose heat more quickly than it can be produced. The body will attempt to compensate by burning through its energy stores, which leads to a lower body temperature. Symptoms of hypothermia can vary, depending on the severity.

Early symptoms include shivering, fatigue, loss of coordination, confusion and disorientation. Advanced symptoms may include blue skin, dilated pupils, slowed pulse and breathing, little or no shivering, and loss of consciousness. Hypothermia is a medical emergency requiring immediate attention.

FROSTBITE

Frostbite is an injury that occurs when your skin and tissues freeze. It most often affects the extremities, such as the nose, ears, cheeks, chin, fingers and toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation.

Symptoms include reduced blood flow to hands and feet, numbness, tingling or stinging, aching, and bluish or pale, waxy skin. Seek medical care as soon as possible.

TRENCH FOOT

Also known as "immersion foot," this is an injury of the feet caused by prolonged exposure to wet and cold conditions. If the feet are consistently wet, it can occur at temperatures as high as 60 degrees Fahrenheit. To prevent heat loss through the wet skin, the body constricts blood vessels to shut down circulation in the feet. Tissue then begins to die from lack of oxygen and nutrients, and the buildup of toxins.

Symptoms include reddening of the skin, numbness, leg cramps, swelling, tingling pain, blisters or ulcers, bleeding under the skin or even gangrene. Seek medical care as soon as possible.

CHILBLAINS

Repeated exposure of skin to temperatures (from just above freezing to as high as 60 degrees Fahrenheit) can cause this type of damage to the small blood vessels in the skin. It is permanent and the resulting redness and itching—usually on cheeks, ears, fingers and toes—will return with further exposure.

Symptoms include redness, itching, possible blistering, inflammation and possible ulceration in severe cases. Seek medical care for severe or persistent symptoms.

Source: https://www.cdc.gov/niosh/topics/coldstress/coldrelatedillnesses.html.

"Listen more, understand more, and then speak a little bit less, but make sure what you're trying to convey is clearly understood."

As for working with the military, he said there are some important differences. "We have very, very different cultures." In part, those cultural differences are related to the vastly different sizes of the departments. "DOD is so much larger than State, and so that has an impact on our cultures." But, DeHart said, those differences are ultimately a benefit, in terms of collaboration and impact. "It's very good that we have different cultures, because we look at things quite differently and we approach problems differently. And if we do that together, and we have good collaboration and coordination, then we can come at a problem from different angles, and sometimes solve it more effectively together." He said he witnessed that sort of partnership while working closely with DOD partners in Afghanistan, in Korea and at NATO headquarters in Belgium. "The last thing we should try to do, in my opinion, is try to merge the cultures, or really try to adopt the culture of the other, because we're better with a diverse approach."

CONCLUSION

The rapidly changing Arctic will be an increasingly visible and crucial priority for the U.S. government in terms of homeland defense, economic development, scientific research and international cooperation. Though the rate of physical change to the environment is rapid, this effort will require sustained effort, attention and cooperation from DOD, the State Department and many other federal and non-governmental partners. "Things are not going to open up overnight in the Arctic, but we're trying to get in on the front end of what will be years and decades of new activity in the region," DeHart said. "Our involvement there is not a sprint—it's a Birkebeiner."

*For more information on the Office of the U.S. Coordinator for the Arctic Region, go to **https://go.usa.gov/x7Sar** or follow the office on Twitter at **@US_Arctic**.*

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THE HIGH-PROFILE HIGH NORTH

U.S. leaders focus on the Arctic.

The Arctic has long served as a protective barrier for North America—a cold and nearly impenetrable wall that required little active defense. As climate change makes the region more easily accessible, the nations of the Arctic are reckoning with the new and increasing possibility of adversarial military activity in their northernmost territories. For the United States, which in recent years has focused much of its military resources on conflicts throughout the Middle East and South Asia, military leaders have decided it's time to reassess their cold-weather capabilities.

The Army's new Arctic strategy, released March 16, outlines the branch's commitment to regaining dominance in the far north. This heightened focus on cold-weather capabilities will also necessitate materiel solutions for Soldiers in the region—the tools, equipment, training and infrastructure to enable rapid and sustained operations at temperatures as cold as -65 degrees Fahrenheit. "The Arctic is an opportunity to rapidly employ the speed, range and convergence of cutting-edge technologies being developed for multidomain operations to strengthen our deterrence capabilities in the region," said Gen. James McConville, Chief of Staff of the Army.

COOL NEW TOYS
A Small Unit Support Vehicle drives through the Yukon Training Area on Eielson Air Force Base on Feb. 27 as part of exercise Arctic Eagle 2020. The 2021 defense spending bill said, "The committee encourages the Secretary of the Army to pursue equipment and vehicles necessary for Arctic and cold weather environments." (Photo by Spc. Kyle Odum)

AN ARCTIC HIKE
U.S. Marines with Marine Rotational Force – Europe (MRF-E) 20.2, Marine Forces Europe and Africa, observe the mountain ranges to identify the next destination during a Narvik Battle Study Hike in Setermoen, Norway, in September. MRF-E conducts various exercises including Arctic cold-weather and mountain-warfare training, as well as military-to-military engagements, throughout Europe that enhance cooperation among partners and allies. (Photo by Sgt. Abrey Liggins, U.S. Marine Corps)

"As a force organized, trained and equipped for land warfare, the Army must adapt and change to be relevant in the Arctic."

A CHILLING EXPERIENCE
A U.S. Marine with Marine Rotational Force – Europe 19.1 remains calm to prevent hypothermia during a drill as part of Exercise White Ulfberht in Setermoen, Norway, in January 2019. MRF-E Marines were exposed to freezing water to test their ability to use proper methods to get out of water in case of breaking ice. (Photo by Cpl. Nghia Tran, U.S. Marine Corps)

ICE BRIDGE

Paratrooper engineers with 25th Infantry Division use an auger to drill a hole in river ice as they prepare to construct a bridge across the Tanana River at Donnelley Training Area, Alaska, in January. The paratroopers are constructing the bridge in preparation for exercise Arctic Warrior 21. (Photo by Staff Sgt. Alex Skripnichuk, 4th Brigade Combat Team, 25th Infantry Division Public Affairs)

"For a couple of decades, we've been meeting significant demands around the world—to a degree, it's taken its toll," said Maj. Gen. Peter Andrysiak, commanding general of U.S. Army Alaska, speaking at an October 2020 virtual meeting of the Alaska Federation of Natives. "There is a realization that we've got to slow things down and refocus. We are going to focus to rebuild the skills that we have lost over the years." Andrysiak said time is of the essence, and he's not alone in that assessment.

"It's clear to me, there is a quickening in the Arctic," said Michael Sfraga, director of the Polar Institute and the Global Risk and Resilience Program, during a December 2020 Wilson Center virtual panel discussion about the Army's efforts to define its own Arctic strategy. "Whether it be the changing physical landscape, the evolving geopolitical landscape, the promise of increased development and increased commerce, or the growing interest from our non-Arctic nations, it is clear the Arctic is not what it used to be."

Lt. Gen. William B. Garrett III (USA, Ret.) former deputy commander of U.S. European Command, also a panelist

LONG-RANGE PRECISION FIRES

LOGISTICS AND SUSTAINMENT

INTEGRATED AIR AND MISSILE DEFENSE

AERIAL INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE FOR DOMAIN AWARENESS

LONG-RANGE VERTICAL LIFT

ARMY CYBER CAPABILITIES

ARMY SPACE CAPABILITIES

ARCTIC

VITAL CAPABILITIES TO SUSTAIN ARCTIC OPERATIONS

(Source: Lt. Gen. William B. Garrett III (USA, Ret.))

for the Wilson Center discussion, said the Army must prepare itself for large-scale operations in the Arctic. "We have to deal with the world as it is, and that means preparing for great power competition with China, and to a lesser extent, with Russia. The Arctic region is an extension of that competition, even as the security environment in the Arctic is being fundamentally altered by the impact of climate change."

What is the Army's role in this unique environment? "As a force organized, trained and equipped for land warfare, the Army must adapt and change to be relevant in the Arctic," Garrett said. "Success requires adapting existing capabilities and, where necessary, selectively acquiring new capabilities, combined with Arctic-specific training, exercises and posture refinements."

And as the U.S. reprioritizes its Arctic capabilities during this time of rapid change, it must work in concert with its allies around the world. "The United States' greatest strategic advantage in the Arctic is our strong relationship with Arctic allies and partners," said U.S. Coast Guard Capt. Tom D'Arcy, U.S. European Command's Strategic Division Arctic branch chief. "This is something our competitors do not possess. Our network of relationships and capabilities serve as a deterrent helping to deter malign activities in the region."

—ELLEN SUMMEY

GET FROSTY
Command Sgt. Maj. Allen Mortenson of 25th Infantry Division's "Spartan Brigade" checks his equipment before moving to the assembly area after an airborne operation to kick off Exercise Arctic Warrior 21 on Feb. 8 at Donnelly Training Area, Alaska. The Spartan Brigade is the only airborne infantry brigade combat team in the Arctic and Pacific theaters, providing the combatant commander with the unique capability to project an expeditionary force by air. (Photo by Maj. Jason Welch, 4th Brigade Combat Team, 25th Infantry Division Public Affairs)

EXERCISES ON ICE
U.S. Marines with Marine Rotational Force – Europe 20.1, Marine Forces Europe and Africa, conduct a hike during cold-weather training in Setermoen, Norway, in November 2019. (Photo by Cpl. Brennon A. Taylor, U.S. Marine Corps)

NEW COLD WAR?

If we're entering a new cold war, it's not the same as the post-World War II version. China would appear to be the main foe, although Russia remains a challenging adversary. In March 2020, North American Aerospace Defense Command F-22s and CF-18s, supported by KC-135 Stratotanker and E-3 Sentry AWACS aircraft, intercepted two Russian Tu-142 maritime reconnaissance aircraft entering the Alaskan Air Defense Identification Zone. (Photo by North American Aerospace Defense Command)

HOW RELEVANT IS
SPEED?

To regain its technological warfighting edge, the United States must not only allow commercial industry to bid on work, it must also recruit and encourage participation.

by Dave Riel

A s I traveled the smooth, newly constructed road to the small Ugandan village that our medical mission team was serving that week—and remembering the awful, bumpy ride to Bukeka only 18 months before—I questioned my Ugandan host, Ronnie, "When did this happen?" His answer surprised me.

The Chinese had built it within the last year—one of many economic outreaches that Beijing has initiated under its Belt and Road Initiative. As highlighted by the 2018 summary of the National Defense Strategy (NDS), China "is leveraging military modernization, influence operations, and predatory economics to coerce neighboring countries to reorder the Indo-Pacific region [and others] to their advantage." Recently, in his "Message to the Forces" Secretary of Defense Lloyd J. Austin III, said that DOD "will prioritize China as our number one pacing challenge and develop the right operational concepts, capabilities and plans to bolster deterrence and maintain our competitive advantage."

Growing tensions between China and the United States, along with burgeoning Chinese assertiveness and military capabilities, propel us with an urgency to emerge from what the NDS describes as "a period of strategic atrophy" and "a security environment more complex and volatile than any we have experienced in recent memory."

As Michèle Flournoy, former undersecretary of defense for policy, pointed out in a June 2020 article in Foreign Affairs, "[I]t will take a concerted effort to rebuild the credibility of U.S. deterrence in order to reduce the risk of a war that neither side seeks." It is this reprioritization from defeating terrorism to focusing on inter-state strategic competition

Figure 7: DOD OTA Obligations by Customer, 2015-2019
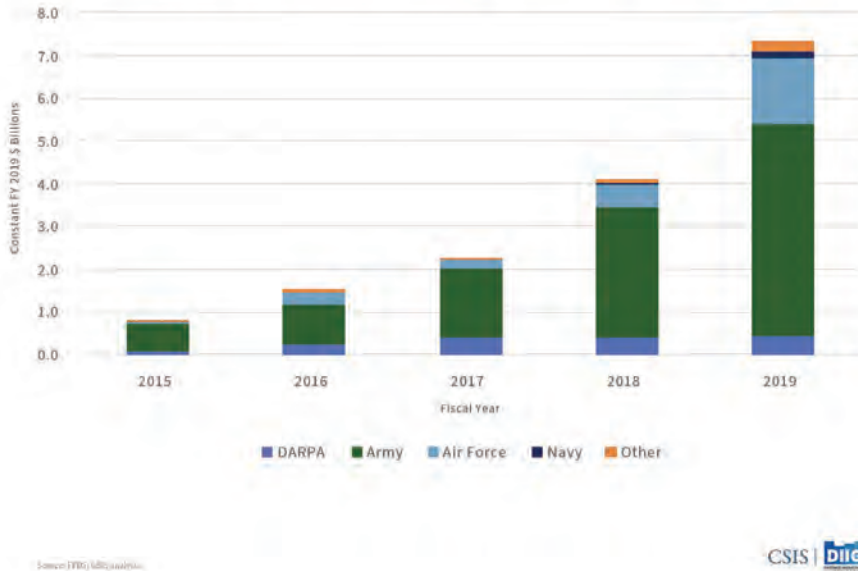
ARMY LEADS WAY ON OTA
The Army remains the leader in other-transaction authority (OTA) usage across DOD. In the 2019 fiscal year, Army OTA obligations increased from $3.07 billion to $4.95 billion, a 61 percent increase. Army OTA obligations have increased 416 percent since fiscal year 2016. (Graphic by the Center for Strategic & International Studies)

that drives our acquisition priority from the early 2010s' "better buying power" to today's "speed of relevance."

So, are we entering a new cold war? Perhaps, but this is not yesteryear's Cold War. Our only interaction with Russia (still a challenging adversary) and its Warsaw Pact allies was government to government. We didn't share much commerce. It was like two clenched fists bumping into each other as each country searched for the next technological breakthrough. Times have changed. Since what has been known as the "Last Supper," in 1993, when then-Secretary of Defense Les Aspin advised the CEOs of our major defense industry partners to consolidate because there wouldn't be a big enough defense budget to support them all, major defense companies have

eroded from 107 at the end of the Cold War to just five by the late 1990s.

IS MORE BETTER?
Yet is multiplying the number of defense industry companies the answer to our goals? No, probably not. The world has changed and is more complex. Unlike two clenched fists, America and China have a much more complex relationship, tightly intertwined economically, while separated doctrinally. As Thomas Friedman notes in his book "The World is Flat," if Walmart were its own country, it'd be China's eighth largest trading partner, surpassing Canada and Australia. Further complicating the scenario is that this global economic race now drives technology. It used to be that military technological advances drove overall technology advancement—the

internet and GPS, for example—but the commercial marketplace now dominates technology. If our nation is to maintain the technological superiority needed by our Soldiers on the battlefield and the deterrence needed for diplomacy, we must capitalize on commercial advances.

Since the early 2018 release of NDS, the acquisition community has established as its primary objective the production of war-winning capabilities at the speed of relevance. Each of the military branches' service acquisition executives have prioritized speed. Dr. Bruce Jette, the former assistant secretary of the Army for acquisition, logistics and technology, has indicated that we must "maximize the use of law and policy in order to rapidly prototype, produce and field products."

The Adaptive Acquisition Framework, described by the Honorable Ellen Lord, the former undersecretary of defense for acquisition and sustainment (USD A&S), as "the most transformational acquisition policy change we've seen in decades," was introduced to "enable innovative acquisition approaches that deliver warfighting capability at the speed of relevance." The framework establishes multiple pathways to achieve that speed. In the National Defense Authorization Act (NDAA) for the 2016 fiscal year, Congress authorized the use of middle tier of acquisition, designed to provide warfighters with new and proven innovative technologies within five years. In the 2020 NDAA, Congress authorized DOD to take advantage of agile commercial software development processes to quickly develop, field and continually upgrade software solutions. Even the stodgy, traditional pathway, now referred to as major-capability acquisition, with its five phases and multiple decision points, embraces as its first priority the "speed of delivery."

As the NDS notes, "New commercial technology will change society and, ultimately, the character of war. That many technological developments will come from the commercial sector means that state competitors and non-state actors will also have access to them, a fact that risks eroding the conventional overmatch to which our nation has grown accustomed." Recognizing the importance of speed and the dominance of the commercial realm's technology progress, the question becomes how we get it to our Soldiers quickly. How do we tap into, adapt and adopt the innovation being developed by commercial entities at a rate faster than China and Russia can?

MORE NEEDS DOING

We have taken some good, necessary steps in allowing commercial companies to more easily engage in contracting with our bureaucratic acquisition and contracting policies, such as increased use of other-transaction aut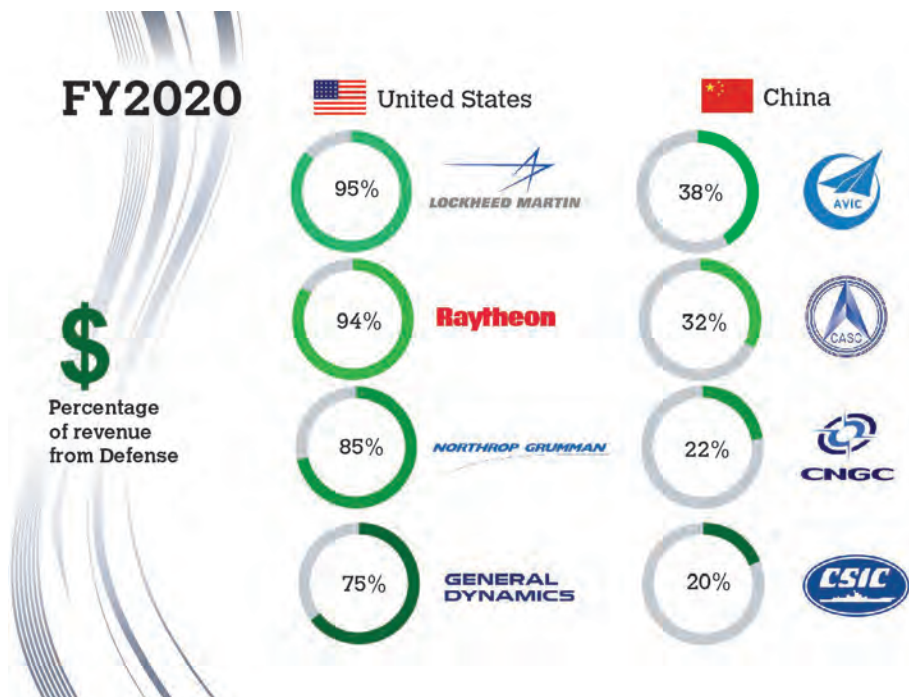hority. However, China has a distinct advantage to tapping into its own advancing commercial technology, as Flournoy noted in her Foreign Affairs piece. China's "doctrine of 'civil-military fusion,' " she wrote, "requires that any commercial or academic technological advancement with military implications be shared with the [People's Liberation Army]."

A survey of the world's top defense contractors shows America with the top five defense revenue-producing companies in the world. However, the American economic model, with the exception of the Boeing Co., typically yields a distinct line between defense and commercial companies. The world's No. 1 defense revenue-producing company, Lockheed Martin, garners 95 percent of its revenue from defense, with the other top companies between 75 percent and 94 percent. China contradicts this model. With five companies in the world's top 15 for defense revenue, Chinese companies are also heavily involved in commercial enterprises, with only 20 to 38 percent of their revenue being generated by defense. This provides for an easier opportunity for Chinese companies to transition advanced commercial technology into defense products.

If we are to retain our overmatch capabilities, we will need the advanced technologies being developed by our most innovative commercial companies. We must stop simply providing ways that allow commercial companies to provide defense products. We must develop more creative ways to actively attract and encourage these world-leading technology companies into providing our Soldiers the war-winning products that will deter our competition. There are specific ways that we can do that.

Expand the use of other-transaction authority. One of the primary ways that innovative commercial companies connect to defense projects is through other-transaction authority. The use of that mechanism has shown an impressive

FY2020

Percentage of revenue from Defense

United States
- LOCKHEED MARTIN — 95%
- Raytheon — 94%
- NORTHROP GRUMMAN — 85%
- GENERAL DYNAMICS — 75%

China
- AVIC — 38%
- CASC — 32%
- CNGC — 22%
- CSIC — 20%

DIFFERENT PORTFOLIOS
Unlike the U.S. defense industry, which produces most of its revenue strictly from defense, China's top defense companies are also heavily involved in commercial enterprises. (Graphic by U.S. Army Acquisition Support Center, statistics from Defense News and the International Institute for Strategic Studies)
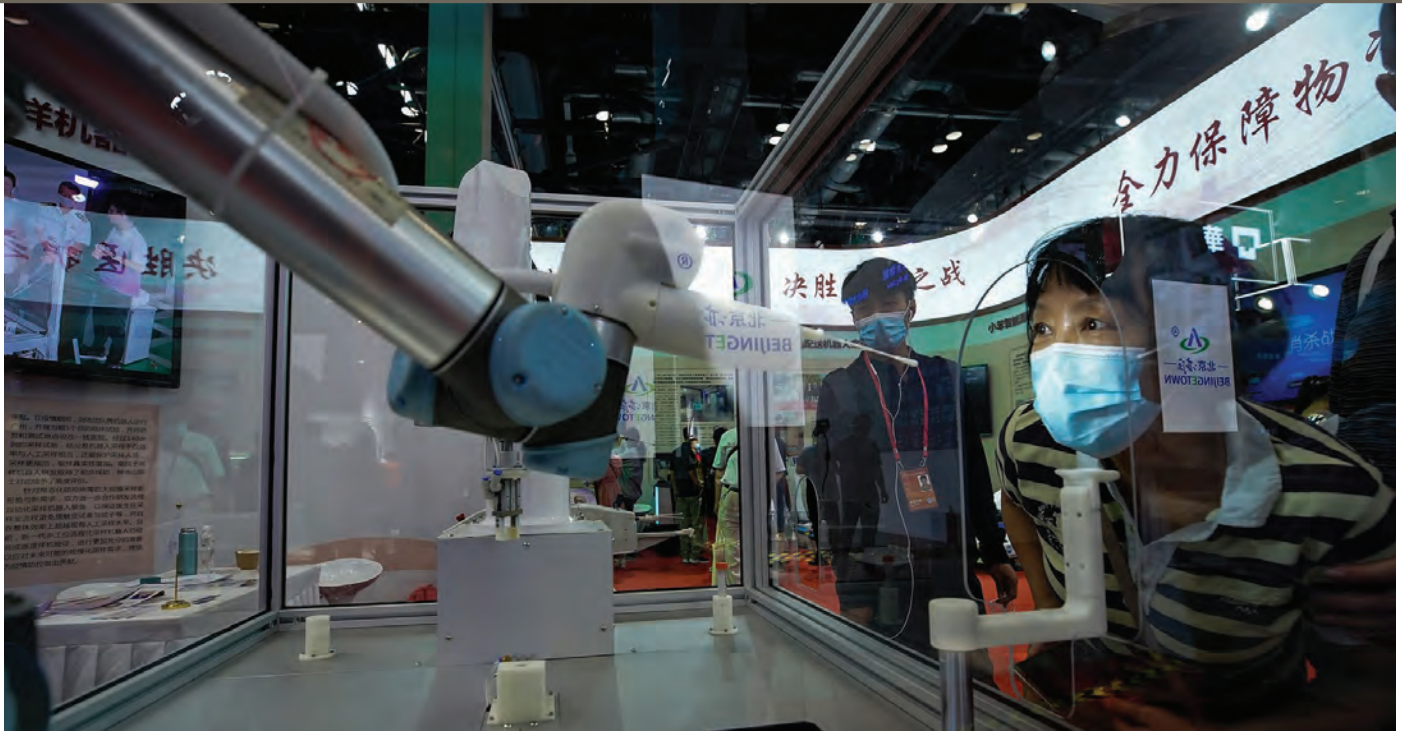
MILITARY OPTION
China's "doctrine of 'civil-military fusion' requires that any commercial or academic technological advancement with military implications be shared with" the People's Liberation Army, wrote Michèle Flournoy, former undersecretary of defense for policy. As China recovers from the COVID-19 pandemic, about 2,000 Chinese and foreign enterprises prepare to participate in the China International Fair for Trade in Services, held from May 28 to June 1 each year in Beijing. (Photo by Lintao Zhang, Getty Images)

increase from $950 million in the 2015 fiscal year to $7.7 billion in the 2019 fiscal year, with the U.S. Army leading the way ($4.5 billion that fiscal year). More can be done.

Innovative commercial companies typically connect with DOD through consortia, aligned by focus areas, such as cyber, space, undersea, propulsion, etc. These consortia establish streamlined procedures to more quickly evaluate ideas and proposals than traditional processes based on the Federal Acquisition Regulation. However, the method by which the government has decided to fund these consortia places an unfortunate disincentive for companies to participate. To join a consortium, these nontraditional vendors, nonprofits and academic organizations must pay an application fee and membership dues, initial and annual, as well as provide a percentage of their profit to the consortium manager.

In this race to technology dominance, these barriers may just dissuade the right company with the right technology to make its war-winning and war-deterring difference from participating.

To attract versus merely allow, why not conduct a competitive source selection for each focus area and pay the consortium manager for its services? This would alleviate any negative financial considerations for innovative, nontraditional entities from submitting their ideas and proposals. For each contract awarded, the consortium manager also would receive a bonus payment, providing incentive to actively pursue and evaluate a maximum number of companies and organizations operating in its focus area.

Design for commercialization. Initiated by Congress with the National Defense Authorization Act for the 2011 fiscal year, the Design Exportability Features Pilot Program has evolved into a requirement in the recent DOD Instruction 5000.85, "Major Capability Acquisition." Starting with milestone A, the proposed acquisition strategy is to include "design[ing] the system for exportability to foreign partners, except when the program has an MDA [milestone-decision authority]-approved waiver allowing for a U.S.-only design," while also requiring the milestone-decision authority to "notify the USD A&S and the requirements-validation authority."

It used to be that military technological advances drove overall technology advancement—the internet and GPS, for example—but the commercial marketplace now dominates technology.

One benefit of designing systems with a modular open-system approach is that they can be readily adapted for our allies' use to enhance international cooperation and improve our interoperability. Why not take this logic one step further and design for commercialization?

Obviously, not all weapon systems and their components have commercial application. However, if many commercial technologies have defense application, the reverse is also likely true, e.g., the internet and GPS. Yes, they must be properly managed for security considerations; however, how can we more aggressively and properly incentivize these transitions?

Dedicated, supplemental funding can be used to encourage our heavily-reliant-on-defense-revenue partners to devise ways during early cutting-edge technology design work to adapt defense technology for commercial application. This could potentially enable them to increase their profit, reduce our production costs, and create more economic competitiveness for the U.S. in the global market—a win-win. A company like Lockheed Martin, with 95 percent of its revenue being derived from defense work, would obviously remain defense heavy. However, wouldn't it be a worthwhile goal to see Lockheed rebalance its revenue-generating percentage to

something closer to 75 percent through commercial adaptation of defense-generated technology?

Actively recruit leading technology companies. Congress and DOD leadership should not just be extending ways to allow our top technology companies to work with the DOD, but they should be actively courting them. The government should identify those commercial technologies that have the greatest potential for war-winning and war-deterring systems, and provide financial and intellectual property incentives for their development.

We experienced a similar provision of incentives in our response to the national COVID-19 crisis. The government quickly activated Operation Warp Speed to develop a COVID-19 vaccine. Why not apply that same logic to technologies that hold the most promise to providing our warfighters with the critical technologies that they need, but perhaps with less intensity owing to resource limitations? The NDS hints at some of these needed technologies in identifying its key modernization priorities, e.g., advanced autonomous systems. Obviously, this would be a very selective process; however, it could help avoid what the NDS describes as "a joint force that has legacy systems irrelevant to the defense of our people."

CONCLUSION

So, how relevant is speed? It's critical! Our Soldiers need our acquisition professionals to provide them with the latest technology and systems to win the wars that we have to fight and fully deter our strategic competition from taking actions that may lead to war. We must be proactive in the pursuit of war-winning capability, rather than reactive. Therefore, we need to not just innovate ways that *allow* leading technology companies to contract with DOD, we must *pursue, attract, encourage* and *incentivize* them to do business with us.

We should also urge our defense industry partners to venture into world-leading technologies that have potential commercial application.

These are just three ideas to jumpstart the process to, as the national defense strategy has it, "change business practices to achieve mission success." We must make it our priority to find more ways if we hope to strengthen America's deterrence and meet the "most far-reaching objective" of the NDS to "set the military relationship between our two countries [China and America] on a path of transparency and non-aggression." We need to produce war-winning capabilities at the speed of relevance!

DAVE RIEL serves as professor of acquisition management for Defense Acquisition University's Midwest Region developing curriculum, teaching classes and providing consultation on the latest defense acquisition policies, program management principles, and production, quality and manufacturing matters. A somewhat different version of this article won the 2020 Maj. Gen. Harold J. "Harry" Greene Award for Acquisition Writing in the innovation category.

CULTURE AND STRATEGY
"Culture eats strategy for breakfast." Renowned management consultant Peter Drucker asserted that, as important as strategy is to success, an organization's culture is a more powerful and pervasive influence. (Graphic by U.S. Army Acquisition Support Center (USAASC))

BEEN THERE, DONE THAT

EXIT INTERVIEW: CULTURE STILL EATS STRATEGY

After 40-plus years in and around Army acquisition, the big concerns about modernization revolve around culture.

by John T. Dillard, Col., USA (Ret.)

I was recently asked for some parting thoughts upon my retirement from a 20-year career teaching at the Naval Postgraduate School, following 26 years in the Army, serving mostly within the area of acquisition. It's been a splendid time working in the Department of Defense all these years, with many relationships formed and maintained still. And I'm still volunteering for the Army from time to time.

I was recently asked what my concerns were now for the future of defense modernization, and I narrowed it down to just three, with perhaps the overarching concern being about DOD's own culture. I had been told countless times over the last five decades that "DOD culture needed to change" to facilitate more efficient and effective acquisition. Why would that be? After the first few years of being an assistant program manager in a major system project office, I felt I had a pretty good idea.

Folks don't often understand or agree on what organizational culture really is. But I feel culture is best defined as: what the organization believes to be true.

This is opposed to climate, which is the tone or environment that leaders can most readily influence through their personal communications, their demonstrated competencies and their behaviors. Culture is more of a lasting thing in organizations. It is shaped by its internal and external reward and control systems, collective values, power structures, routines and behaviors, as well as lore or history. It was Peter Drucker, the legendary management consultant and author, who said, "Culture eats strategy

for breakfast." Not meaning that strategy isn't important, but that it can be either facilitated or hampered by organizational culture. And it was Lou Gerstner, former CEO of IBM, who wrote, in his revelatory memoir, "Who Says Elephants Can't Dance?," that culture was perhaps the single most important thing in executing a large corporate turnaround.

We could have a very long discourse on what we believe our DOD culture is today. But suffice it to say we are very large, hierarchical, rule-laden, centralized, mechanistic and bureaucratic. DOD has two dominant subcultures:

1. A highly mobile military force, typically serving for shorter job and career spans, filled with periodic promotion opportunities based upon performance and potential.

2. A civilian workforce, enjoying fewer such evaluative opportunities, with promotions being more vacancy-based and with job tenure being rewarded over merit, especially during a reduction in force.

Perhaps tongue in cheek, Drucker also once said, "So much of what we call management consists of making it difficult for people to work." The many pages of acquisition rules and regulations, coupled with the many layers and branches of management, make those charged with actually being change agents feel swamped by the red tape. In his classic treatise on organizational behavior, "Images of Organization," Gareth Morgan said that large mechanistic organizations have difficulty adapting to change and are not designed for innovation. He makes a strong case for compatibility between

WHO'S DRIVING HERE?
Former Army Acquisition Executive Heidi Shyu understood from firsthand experience how disruptive it was for program managers to have to attend so many meetings and obtain so many signoffs before getting to a decision. She used this image frequently to get other people to understand how the culture of Army acquisition valued permission at the expense of progress. Army stakeholders are represented in green, Congress in gold, and external stakeholders in red. (Image courtesy of Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology)

A CULTURAL CUSTOM
The culture of DOD is rooted in the mission of national security and based on common values of liberty and freedom. Master Sgt. John Naumann, 103rd Expeditionary Sustainment Command, is promoted to sergeant major by Col. Tomika Seaberry, the command's assistant chief of staff and support operations officer, May 1. (Photo by Spc. Dakota Vanidestine, U.S. Army Reserve)

internal management processes (such as organizational structure, managerial decision-making, technological and strategic) and positioning along a continuum of changing external environments, from stable to turbulent. So DOD must be adaptable if the environment warrants change. And I believe that the landscape today tells us it does.

What's encouraging is DOD's cultural core and backbone, its stable platform upon which to pivot: the mission of national security, with universally shared values of liberty and freedom upon which we were founded. And let's face it—DOD has ultimately been regarded as an early adopter with regard to technology and even some social initiatives.

> **Today, an entire layer of bureaucracy has presumably been reduced, except that the overseers are still there in the Pentagon.**

So beneath this large concern, which I believe will contribute greatly to our success or failure, are my three subordinate ones:

1. Technological urgency—from our threats—versus our current and desired capabilities. As the Army chief of staff recently said, we have to modernize now. Twenty years of overseas operations have badly beaten up our major platforms across all formations. They need modern replacements now, and the Army's new "Big 6" can't arrive soon enough. We will have to use some $60 billion devoted to our modernization over the next five years very prudently, with ample experimentation before commitment. And we know it will be much longer before development really ends on these systems and fielding can commence—longer still before full fielding and operational capability.

The Army is much more diverse than the other services, and with more mission complexity. And so it may require large organizations to allocate resources based upon operational mission and capability analyses, etc. But it has never been lost upon me that the Navy has no Training and Doctrine Command (TRADOC), Army Materiel Command (AMC), or Army Futures Command (AFC), and seems to do just fine with its own modernization efforts. Having these three, four-star major commands now, I certainly hope the Army can adapt to Morgan's paradigm

Our commitment to technical excellence has never been needed more.

regarding the current environment and facilitate each other's efforts rather than get in each other's way. To be nimble and agile doesn't require us to be small. But as my friend Vice Adm. (Ret.) Tom Hughes said to me regarding organizational agility a few years before he passed away, "The DOD is often a victim of its own size, its bigness."

He felt that the sheer scale of DOD's organization and mission sets made it difficult to maneuver and reform. Participants of the O-5/GS-14 Product Manager Pre-Command Course conducted at the Pentagon in the last five years have said to me privately, after senior leaders leave the room, "There are a lot of folks between them [senior leaders] and me who haven't yet gotten the memo on that urgency thing." Once again, a culture of lethargy and rewards for mediocrity, with no penalty for delaying progress, hinders those trying to "move the needle." We cannot let ourselves be a

WHEN SUBCULTURES UNITE
At Fort Campbell, Kentucky, Blanchfield Army Community Hospital Commander Col. Patrick T. Birchfield gives an elbow bump to Screaming Eagle Medical Home Behavioral Health Consultant Joan Lovett before presenting her the Commander's Certificate of Achievement on Oct. 20. When civilian- and military-led expertise comes together, remarkable partnerships can result. (Photo by Maria Christina Yager, Blanchfield Army Community Hospital)

victim of our size. When former Under Secretary of Defense (Acquisition, Technology and Logistics) Ashton Carter stood up his Strategic Capabilities Office, many saw it as an attempt to form a smaller unit, outside of the very large efforts and bureaucracy that he oversaw, that could move system developments forward. If our existing internal management processes and organizational structure and culture cannot adapt to change in the current era, national security may well be at risk.

2. **Relaxation of acquisition policy and the implications of service-level milestone-decision authority.** As the National Defense Authorization Act for Fiscal Year 2017 eliminated the position of undersecretary of defense for acquisition, technology and logistics, and, presumably, a lot of oversight at the level of the Office of the Secretary of Defense (OSD), the milestone-decision authority for the programs to produce our developing systems now rests largely with our Army leaders. Looking back, the Goldwater-Nichols legislation in the 1980s gave us the program executive office (PEO) structure and streamlined the chain of command for major system program managers. But the service and OSD-level staff bureaucracy remained, in what was essentially a centralized decision-making mode.

Over the years, we voiced to congressional staffers that it wasn't more legislation that was needed to speed acquisition so much as more decentralized decision-making. Our DOD Instruction 5000 series acquisition regulations espoused program managers having more responsibility, but the plethora of meetings and "rings to be kissed" (bureaucrats to be satisfied) en route to

MEETING THE CHALLENGE
The Army's urgently needed modernization of its "Big 6" priorities requires an organizational culture supporting prudence and creativity to make the most of about $60 billion designated for the effort over the next five years, and that's just for the early phases of development. (Graphic by USAASC)

a decision were extremely burdensome and even disruptive, with many "powers of no." Frustrated, former Army Acquisition Executive (AAE) Heidi Shyu called this "too many cooks in the kitchen" and often used a cartoon of a bus driven by a PM, with each passenger having their own brake pedal and steering wheel. Again, she

saw that our own management culture appeared to be more oriented to permission than progress, resulting in hindrance.

Today, an entire layer of bureaucracy has presumably been reduced, except that the overseers are still there in the Pentagon, offering advice and healthy skepticism for

Culture is best defined as: what the organization believes to be true.

BIRD'S EYE VIEW
The Naval Postgraduate School has launched an interdisciplinary degree to provide additional education in the areas of systems engineering, program and contract management for its military and civilian workforce. (Photo courtesy of U.S. Naval Postgraduate School)

I had been told countless times over the last five decades that "DOD culture needed to change."

the services to listen to. Sometimes the overseers are right and, just like the old expression, "Be careful what you ask for, you might get it," we'd better know what we're doing as we go up the chain for a decision. PMs can't discard the 1,000-plus pages of the Defense Acquisition Guidebook and all of the corporate wisdom about systems acquisition accumulated therein through the years. It is incumbent upon acquisition managers to make themselves technically competent in every sense, so they can steer the chief and AAE toward good decisions and prevent or curtail bad investments.

There is no need to reinvent the wheel. It's on us now more than in the past—and in an environment that is a bit less risk averse and more permissive than ever.

It behooves us to seek as much advice as possible. The collective wisdom is out there. Right now, the ongoing COVID constraints are certainly not helping, but we still have to engage with all stakeholders. And when we cannot obtain buy-in, we must elevate issues to the level of resolution. Lt. Gen. Paul A. Ostrowski (USA,

Ret.) used to say frequently to his young product managers, "Elevating issues to a higher level for resolution is not a failure on your part. Make the unreasonable ones defend their positions in front of their bosses." With authority comes responsibility and accountability—it's never been more true.

> ## "There are a lot of folks between the senior leaders and me who haven't yet gotten the memo on that urgency thing."

3. Our organic ability to modernize our forces demands education on both the requiring and acquiring sides of the DOD. Acquisition has never been "amateur sport," and our commitment to technical excellence has never been needed more. While a new back-to-basics initiative is underway to revamp credentialing for acquisition professional training, education and experience, the train is still moving. We can't wait for new policy and the training institutions to catch up before we edify ourselves about our work and tradecraft. The requirements side needs all the help we can give them in understanding what is doable and affordable in a given time frame. Acquisition is on the secretariat side since Goldwater-Nichols '86, while operational requirements are with the Army G-staff, along with resources to prioritize and get it all done.

These two sides of civilian- and military-led expertise, respectively, don't have to be separated by walls; they can work together in real synergy. A tremendous partnership results when the requirements side knows what is needed, how it's going to be employed in battle and how many are going to be acquired; and the acquisition side knows the cost, schedule and performance levels of the capability to be acquired. The library of acquisition knowledge is at our fingertips, thanks to information-age technology and the public domain. For those that want a graduate school education, the Naval Postgraduate School has education programs for

military and civilian acquisition professionals birthed and sponsored by the AAE's military deputy (MILDEP) and the Army's director of acquisition career management (DACM).

Understanding the need for more science, technology, engineering and math (STEM) education, three successive MILDEPs since 2012 (Lt. Gens. William N. Phillips, Michael E. Williamson and Ostrowski, plus Craig Spisak, the DACM) directed NPS to launch an interdisciplinary degree that would provide needed education in the areas of systems engineering, program and contract management for its military and civilian workforce. Since the degree was established in 2018, fully 10 percent of the military Army Acquisition Corps has been enrolled in the resident 18-month program. Almost 70 civilians have done the same with their 24-month nonresident version of the degree program.

They graduate fully equipped to deal effectively with all possible stakeholders in science and technology, testing, logistics, finance, contract and program management. I was truly privileged to have helped these general officers get the education programs going while at NPS. That effort in educational reform for the Army Acquisition Corps was to help create a culture shift as it pertains to American society today, where a lack of STEM education overall presumably has placed us behind peer threats in tech areas like artificial intelligence, hypersonics, directed energy, etc.

Drucker also once told leaders that if they were unable to effect true change of culture, "work with what you've got." So all in all, I feel Army acquisition's stage is set for the next act. Will our bureaucratic culture slow our modernization efforts? Or will our stable backbone of values and a unified vision move us, aided by urgency, decentralized authority and enhanced education? I'll be close by and watching for what happens next. Good luck—and my colleagues are free to reach me at *dillardjohnt@gmail.com.*

JOHN T. DILLARD, COL., USA (RET.), recently retired from the Naval Postgraduate School, where he was a senior lecturer in the Systems Engineering Department of the Graduate School of Engineering and Applied Sciences. He also served as the technical representative for the Army's M.S. programs in systems engineering management. Dillard managed major weapons development efforts for most of his 26-year career in the U.S. Army. He holds an M.S. in systems management from the University of Southern California and is a distinguished military graduate of the University of Tennessee at Chattanooga with a B.A. in biological sciences.

WORLD-CLASS, FAIR AND CONSISTENT

The Acquisition Leader Assessment Program adds more data to the selection of officers for command and key billet positions.

Employing the best talent for the Army Acquisition Workforce is paramount if we're to succeed at our mission: to get the very best capabilities into the hands of our warfighters. We've taken a large step in improving those efforts with the introduction of an exciting new initiative, the Acquisition Leader Assessment Program (ALAP)—the first run of which took place in November at Fort Knox, Kentucky—which will help determine which officers in the Army Acquisition Corps are ready for centralized selection list (CSL) command and key billet positions.

The Army Director of Acquisition Career Management (DACM) Office, working in conjunction with the Army Talent Management Task Force, developed ALAP to expand on the current method of determining which officers will be chosen for CSL positions. The current CSL file review process has served the Army well; ALAP adds another dimension to the existing process that further helps identify whether officers are ready for command. If a candidate is identified as not yet ready for command, that doesn't mean they're not ever ready. Candidates are offered developmental feedback before leaving ALAP and are also offered coaching and, if eligible, have an opportunity to participate in ALAP again. The result is an officer who can improve their leadership and can be a stronger candidate in the future.

GOLD AT FORT KNOX
Lt. Col. (P) Rhea Pritchett, from the Program Executive Office for Simulation, Training and Instrumentation, takes one of the assessments geared toward measuring participants' leadership competencies during ALAP at Fort Knox, Kentucky, in November. (Photo by Army Talent Management Task Force)

A TOUGH FOUR DAYS

In November, 17 Army acquisition officers attended the first Acquisition Leader Assessment Program at Fort Knox, Kentucky, and participated in a grueling four-day program:

Day Zero: Height and weight measurements. Anyone who did not meet the Army standard was sent home.

Day One: Kicked off with a series of psychometric assessments to inform the panel on cognitive and non-cognitive measures.

Day Two: Started with the first of two writing assessments. The first was a strategic writing exercise that required the candidate to respond to a strategic article. This exercise sought to determine the candidate's ability to think critically and to write clearly. After lunch, the candidates took a series of cognitive and non-cognitive assessments. After a break, the candidates took another writing test, this one to assess the officer's ability to recognize proper grammar.

Day Three: Started with an interview with an operational psychologist. Then the candidates took the Army Physical Fitness Test.

Day Four: Each candidate completed a double-blind panel interview with general officers and members of the Senior Executive Service.

ALAP follows the model of the Battalion Commander Assessment Program (BCAP), the first run of which was held in January 2020, and the Colonels Command Assessment Program, first held in September, under the leadership of the Army Talent Management Task Force. Gen. James McConville, chief of staff of the Army, announced the inaugural BCAP at the annual meeting of the Association of the United States Army in October 2019, stating: "We spend more time and more money on selecting a private to be in Ranger regiment than we do selecting what I would argue is one of the most consequential leadership positions in the Army, our battalion commanders."

ALAP aims to take that same approach to amassing talent assessment data to find acquisition officers who are ready for command and key billet positions. November's first run included colonels and lieutenant colonels (promotable); this year the program will be expanded to include lieutenant colonels and majors (promotable). The DACM Office also expects to include centrally selected civilians at the

GS-14 and GS-15 levels as well. As ALAP integrates our civilian leaders, there will be some minor modifications to ensure that we have a fair and consistent assessment for all of our leaders.

The assessments from the inaugural ALAP included:

- **Peer and subordinate assessment.** Peers and subordinates of the candidates chosen by the Army provided assessments of the candidates using observed behavior scales to assess the candidate's leadership effectiveness and frequency of counterproductive leader behaviors.

- **Height and weight assessment.** Failure to meet the Army's standards was a screening event.

- **Physical fitness.** The candidate is scored on the Army's Physical Fitness Test.

- **Testing cognitive and non-cognitive abilities.** These inform how well leaders will be able to handle the complex missions they are assigned.

- **Writing assessment.** Two writing assessments help determine the candidate's written communication skills. The candidate is first required to provide a persuasive argument to a strategic article, which tests the candidate's analytical and communication abilities. The second writing test is strictly on style and grammar.

- **Psychometric assessment.** These assessments measure cognitive and non-cognitive abilities, as well.

- **A panel interview with senior Army leaders.** It is a double-blind interview with a screen preventing the leader and panel members, the majority of whom are acquisition general officers and members of the Senior Executive Service (SES), from seeing one another. This mitigates potential biases and focuses the candidates on responding to the question and the panel members on assessing the response.

TAKE ALAP

Lt. Col. (P) Kenneth Darnall, from the Defense Contract Management Agency, participates in the Army Physical Fitness Test, one of the comprehensive ALAP assessments that help determine participants' potential for command, at Fort Knox, Kentucky, in November. (Photo by Army Talent Management Task Force)

CONCLUSION

The legacy process of selecting leaders for command in the Army Acquisition Workforce has served us well. But ALAP will add more data points, providing a more holistic picture of an acquisition leader's leadership and potential, to help us make better selection decisions for these critical positions that will lead our military and civilians in our most important acquisition efforts. We owe them, the AAW and the Army no less.

EVERY SOLDIER. EVERY DAY.

DATA-DRIVEN DECISION-MAKING
BUSINESS SYSTEM CONVERGENCE
NETWORK MODERNIZATION
CYBER DOMINANCE

PEO ENTERPRISE INFORMATION SYSTEMS ENSURES SOLDIERS ARE READY TO FIGHT AND WIN.

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THE PATH TO SUCCESS
Army civilians have many potential routes to professional achievement, and the IDP can help them choose the best path to reach their goals. (Graphic by Getty Images)

CHARTING
YOUR COURSE

Individual Development Plans help
employees map their career path.

by Jacqueline M. Hames

"**W**hat do you want to be when you grow up?" People are asked that question as children countless times. Engineer. Actor. Race car driver. Firefighter. The list is endless and ever changing. For adults who don't become firefighters or actors, the question evolves into "Where do you see yourself in a year? In five?"

An individual development plan (IDP) can help to answer that question. An IDP is a career and personal development tool for employees that will help them reach short- and long-term career goals and improve current job performance, according to the Office of Personnel Management. Several agencies within DOD and elsewhere in the government have implemented IDPs to assist employees in their development, and the Director of Acquisition Career Management (DACM) Office is no exception—all Army Acquisition Workforce (AAW) members are required to maintain a five-year IDP.

A SEA OF IDEAS
When planning for the future, it's helpful to set both long-term and short-term goals. The IDP is a tool that helps Army civilians develop so-called SMART goals for their careers, spanning a five-year period. (Image by Getty Images)

THE NITTY-GRITTY

During a discussion with the DACM's acquisition career managers, Army AL&T learned some helpful information.

The IDP is a tool that enables employees to plan, discuss and manage their continuing education, training or special experience needed to meet the certification requirements of their position. For those civilian employees whose positions fall under the Defense Acquisition Workforce Improvement Act, the IDP is a requirement, as is its regular maintenance, because training never stops. The IDP outlines what employees want to do with their careers in the future and how they would like to achieve those goals. Employees should keep in mind that the IDP is not the same as a performance evaluation. A performance evaluation is for the past, while the IDP is for the future—career planning. The IDP supports the performance evaluation because you're saying: "Here's what I did…," or "Here's what I am planning to do within the rating period." The IDP complements the performance evaluation.

The DACM Office's acquisition career managers emphasized that an acquisition professional's IDP is not the same as a non-acquisition employee's, which is accessed through the Army Career Tracker—another career management website that can house an IDP. An Army acquisition IDP is an online document accessed via the Career Acquisition Personnel and Position Management Information System (CAPPMIS). The main difference between an acquisition IDP and others is that the acquisition IDP is tailored to the AAW and encapsulates an employee's current professional acquisition and career status.

For the AAW, the IDP is a one-stop tool containing several categories essential to acquisition career development, management and communication, and engagement with supervisors. Under the IDP's home page, there is a handy electronic dashboard summarizing an acquisition employee's status across multiple areas of responsibility. The planning and history tabs are for monitoring training, professional acquisition and leadership activities, and for tracking continuous learning points (CLPs) earned. The supervisor's tool allows supervisors to add employees under their hierarchy, approve training and professional activities requests, award CLPs and manage AAW members' positions and career progression. The objectives tab is for recording career objectives and goals essential to career development and management.

MAKING IT WORK

Acquisition and non-acquisition supervisors of acquisition professionals must review IDPs with their employees every 180 days to identify other training, education and experience opportunities available within the five-year timeframe. The review should cover the current objectives. Objectives are broken into two parts that span a five-year period: short- and long-term objectives. The DACM Office recommends writing so-called SMART

goals to help employees achieve their objectives in increments—things that are specific, measurable, attainable, relevant and timely. Employees should ask themselves: "Where do I see my career going?" and "What steps do I need to take to get there?" After a discussion with the supervisor, employees input short- and long-term objectives and submit them for approval. The IDP is only valid after supervisory approval.

The career managers stressed that—from the initial counseling of a new employee to the 180-day updates—an employee must ensure their supervisor has added them to the supervisor module in CAPPMIS. If there's no supervisor listed, or if an acquisition employee's IDP objectives lapse, the IDP is, in effect, useless.

While it isn't required, employees can use the DACM Office's notional acquisition career models for objective and goal inspiration if they're stuck. For those, go to https://asc.army.mil/web/career-development/civilian/career-models/.

CONCLUSION

The acquisition IDP, similar to other versions of the IDP, helps plan future career moves and keeps employees on track for career growth and development. The best thing about the acquisition IDP is that it is a comprehensive and flexible career development tool that can help employees achieve their professional ambitions.

So whether an employee is new to the acquisition field or has been here in the trenches for a while, remember—employees have the power to change their career trajectories. Just adjust the IDP.

For more information on how to use the IDP, contact your designated acquisition career manager through CAPPMIS at **https://go.usa.gov/xASyu** *(CAC required).*

For more information on how to manage an acquisition career, read the DACM's quick reference guide at **https://go.usa.gov/xASV3**.

JACQUELINE M. HAMES is an editor with Army AL&T magazine. She holds a B.A. in creative writing from Christopher Newport University. She has more than 10 years of experience writing and editing news and feature articles for publication.


MAPPING THE FUTURE

It's just like charting any other course—Army Acquisition Workforce members should use their individual development plans to determine how to reach their professional goals. Army Reserve Officer Training Corps cadets Chole Bullock, left, from the University of Vermont, and TeAta Gutierrez, right, from Azusa Pacific University, participate in a land navigation course at Camp Adazi, Latvia, on June 10, 2019. (Photo by U.S. Army Cadet Command Public Affairs)

INFORMATION ZONE

For Army acquisition personnel, the IDP is accessed through CAPPMIS. The acquisition IDP is specifically tailored to members of the Army Acquisition Workforce and details the employee's current career status. (Image courtesy of the author)

FACES
of the
FORCE
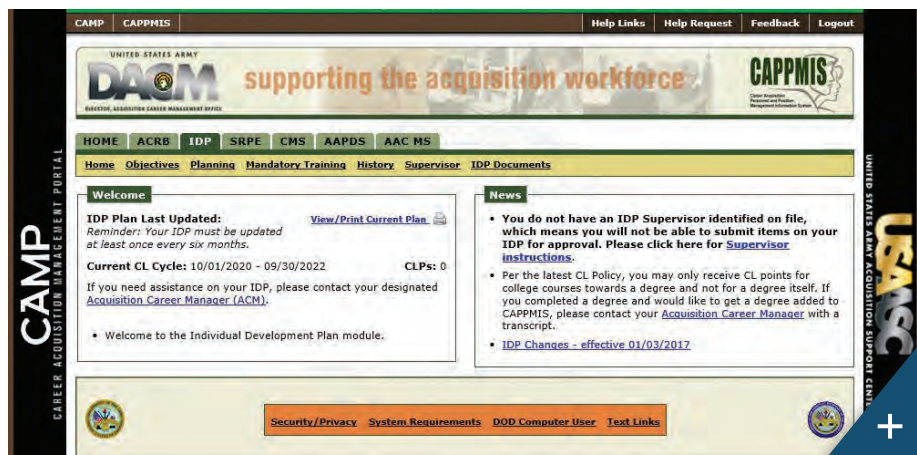
SGT. 1ST CLASS ROBERT NICHOLSON

COMMAND/ORGANIZATION: 923rd Contracting Battalion, 418th Contracting Brigade, Army Contracting Command

TITLE: Acquisitions, Logistics and Technology NCO

YEARS OF SERVICE IN WORKFORCE: 8

YEARS OF MILITARY SERVICE: 16

DAWIA CERTIFICATIONS: Level III in contracting

EDUCATION: MBA, Trident University International; M.A. in acquisitions and procurement management, Webster University; M.S. in homeland security, Trident University International; B.S. in chemistry, Southern Connecticut State University; certificates in health science laboratory technology from George Washington University and emergency and disaster management from Trident University International.

AWARDS: Bronze Star, Meritorious Service Medal, Purple Heart, Joint Service Commendation Medal, Army Commendation Medal (4th Award), Army Achievement Medal (8th Award), Army Good Conduct Medal (5th Award), Afghanistan Campaign Medal (3rd Campaign), Korean Service Defense Medal, NCO Professional Development Ribbon (3rd Award), the NATO Medal (2nd Award), the Combat Action Badge and the Parachutist Badge.

BOUNDLESS CURIOSITY

Sgt. 1st Class Robert Nicholson has never met a topic that didn't interest him. Science, sociology, contracting, technology, medicine, security, leadership—he will readily engage in earnest exploration and discussion at any opportunity. And it shows. The 16-year noncommissioned officer (NCO) holds three master's degrees and is currently pursuing a doctorate. In November, the Priory, Jamaica, native was selected for the 2021 Black Engineer of the Year Award (BEYA) in the graduate-level student leadership category. The awards are given by the BEYA STEM Conference each year, an event that highlights the contributions of African American leaders in the fields of science, technology, engineering and math.

"I'm not actually an engineer, though," he clarified. "That's the name of the award, but it's for any STEM field, not just engineering." Nicholson, a self-professed "Trekkie" and lifelong science geek, decided to enlist in the Army after coming to terms with his own suspected academic limitations. "I emigrated to the U.S. after attending community college in Jamaica. I completed my B.S. in chemistry in 2003, and it was then that I realized I may not have been destined to be a true 'STEM pioneer.' Don't get me wrong—I love science, but I am just not one of those naturally gifted genius types."

Gifted or not, he isn't afraid of a challenge. Nicholson chose to join the Army, where he would reassess his priorities and decide on a new goal for his life. Once he discovered the ample education opportunities for Soldiers, all bets were off. Four degrees later, he has no plans to stop. "I tell other Soldiers all the time, you have a great opportunity to grow in the Army. When you're on deployment somewhere, you should always make the most of that time and continue your education. Never stop learning."

He began his Army career at the U.S. Research Institute of Environmental Medicine, in Natick, Massachusetts. There, he spent eight years working as a biological research assistant and medical laboratory specialist. "That was an awesome job and my experiences there were extremely influential to me," he recalled. "But I wanted to explore what else the Army had to offer, so I decided to apply to the 51C MOS," the acquisition military occupational specialty for enlisted Soldiers. Particularly appealing to Nicholson were the competitive accession requirements, high academic standards and broad job description. "I had just returned from a U.S. Special Operations Command MOS immaterial deployment, so along with my educational background, I knew this field was where my all skills and personality would best be appreciated and utilized."

Today, he is an Acquisition, Logistics and Technology NCO with the 411th Contracting Support Brigade, Camp Humphreys, Korea, having just transitioned from the 923rd Contracting Battalion at Fort Riley, Kansas. He has had the opportunity to mentor younger Soldiers throughout his time in the service, and he typically offers a piece of advice that was once given to him. "It's the P-I-E concept," he said. "A theory introduced by Harvey J. Coleman in the 1990s, which suggests that success is based 10 percent on performance (P), 30 percent on image (I) and a whopping 60 percent on exposure (E)." While performance is obviously necessary, Coleman said it was not sufficient. In fact, since performance is expected, then image and exposure are the things that set you apart. Image is how you perceive yourself and how others perceive you, and exposure refers to your interactions with colleagues, leaders and other stakeholders.

"Find ways to increase the number of interactions you have with your immediate senior leadership, service members and civilians from other MOSs and branches, and within the vast acquisition field," he said. "The formal interaction is where you are usually measured, but the informal is where you are finally judged. In our career field, exposure and relationship-building with other fields are key to mission accomplishment. We all know how difficult it can be to translate regulations to a requiring activity who has no idea who we are, what we do or why we do it a certain way. So, get started early on building those relationships—formally and informally."

"Inclusive leaders tend to create collaborative and understanding environments."

And this is not an abstract idea for Nicholson—he has the lived experience to support that advice. After making the transition to his first acquisition assignment in Korea in 2012, he was mentored by a more experienced Army civilian, who has since become a close friend. "He taught me the art and science of contracting," Nicholson recalled. But he also learned about the true meaning of inclusion. "By watching his interactions with the Korean local nationals and other military personnel, I came to appreciate why inclusion and diversity are so important." People often hear the word "inclusion" and think about race, gender or sexual orientation, but Nicholson believes it's a much broader concept. "Inclusive leaders tend to create collaborative and understanding environments," he said. "This includes articulating an authentic commitment to diversity of thought. It's about humility, awareness of bias, an open mindset and a deep curiosity about others, as well as empathy and cultural intelligence, empowering others and focusing on team cohesion."

Nicholson, the lifelong learner with endless curiosity, said his greatest professional satisfaction as a member of the Army Acquisition Workforce is that he has found that kind of inclusive leadership within the Army Contracting Command. "I've witnessed an unfettered commitment to inclusion and diversity here," he said. "While no organization is perfect, I feel it takes a very committed and conscious effort to ensure inclusion and diversity are celebrated, and I applaud my leaders for that."

—*ELLEN SUMMEY*

PURPLE HEART HONOREE
Nicholson received the Purple Heart Award at Bagram Airfield, Afghanistan, May 16, 2017, for injuries suffered during an attack on the installation on Nov. 12, 2016. (Photo by Sgt. 1st Class Eliodoro Molina, U.S. Forces Afghanistan)

WHEN THE GOING IS TOUGH,

A HAND UP
Living through a pandemic is a challenge for which few people were adequately prepared. It's important to seek help when needed. (Photo by Staff Sgt. Chad Trujillo, U.S. Air Force)

GET HELP

Life circumstances can be stressful, and a pandemic just compounds stress. For help, look to the EAP and other Army resources.

The COVID-19 pandemic came ashore more than a year ago, a silent, motionless hurricane, overwhelming the country and trapping everyone and everything within its eyewall. COVID-19's slow-motion chaos reordered life and business. And now, as vaccines begin to promise a bit of hope, emerging evidence suggests new variants of the virus might make existing vaccines less effective than originally planned, casting further uncertainty.

It's enough to make a person lose their grip. But in reality, the present is so difficult that being stressed or feeling like you're losing your grip is an entirely rational response. "It's a stressful time," said Gary Cunningham, an analyst in the Ready, Resilient and Training Division of the Army Resilience Directorate within Army G-1 (human resources), in an interview with Army AL&T.

Stressors that affect one person may not affect another. People who live alone face deep isolation or risk their health to be with others. Families may be spending more time together than they ever have. Such are the stressors that this virus is adding to the usual, Cunningham said. "You have spouses at home who normally wouldn't be at home all day long, and that could be causing friction. You've got kids that are that are trying to log into school" while parents are trying to work. For teachers, he continued, there may be stress "just trying to get 20 kids on the computer and on the same page at the same time."

For those like Cunningham who work with the Army's Employee Assistance Program (EAP) and its parent, the Army Substance Abuse Program (ASAP), the pandemic provides an opportunity to better inform the Army enterprise—both within and beyond acquisition—about the availability of those programs. More importantly, the enterprise should know that help from an impartial and confidential person is available when it's needed.

OVERCOMING STIGMA

There's a belief among a lot of Army civilians and military personnel that seeking counseling or other mental health care is a career-ender, said Doryan Dixon, an alcohol and drug control officer with ASAP at Fort Belvoir, Virginia.

That isn't true, she said in an interview. However, there are things that counselors are bound by law to report—such as when someone could be a danger to themselves, others or the mission. When first talking with someone looking for help, counselors will tell the client what must be reported and warn that if the client tells the counselor any of those things, they must report it.

BE PERSISTENT

The Army offers lots of benefits to both military and civilian personnel, but sometimes finding them can be more difficult than taking advantage of them. In the interest of full disclosure, it took a few days for anyone to reach out to Army AL&T after we called the EAP phone number listed on the Fort Belvoir garrison's homepage and left a message in late January requesting

Stressors that affect one person may not affect another. People who live alone face deep isolation or risk their health to be with others. Families may be spending more time together than they ever have. Such are the stressors that this virus is adding to the usual.

information. That was because her program was short-staffed at that moment, Dixon said.

"I'm really hopeful that we could have someone on within the next two to four weeks," she said. "But let me make sure that I clarify: We are providing limited services at this time. I've actually done intakes and follow-ups and making contacts and providing referrals for physicians." But Fort Belvoir EAP and ASAP are not presently "doing the full gamut of the program" because of the pandemic.

CRISES CAN'T WAIT

Those in crisis who need to speak to someone immediately can use the Military Crisis Line (go to **https://www.veteranscrisisline.net/get-help/military-crisis-line**) to phone or chat. In the U.S., call 800-273-8255 and press 1. From the Military Crisis Line website:

In Europe, call 00800-1273-8255 or DSN 118.

In Korea, call 0808-555-118 or DSN 118.

In Afghanistan, call 001-800-273-8255 or DSN 111.

You can also use the Crisis Chat and request a call from a responder.

The Veterans Crisis Line "is a free, confidential resource available to any Veteran, even if they are not enrolled in VA [Department of Veterans Affairs] health care or registered with VA. Care does not end when the conversation is over. The Veterans Crisis Line can connect Veterans to their local suicide prevention coordinators, who follow up to coordinate care."

That main number, 800-273-8255 (TALK), is the National Suicide Prevention Lifeline, intended for the general public. Pressing 1 takes callers to the Veterans Crisis Line, which is for both service members and veterans. According to the Resilience Directorate's website, text chat is also available. Those in crisis, or with loved ones in crisis, can text 838255 to initiate a conversation. The site advises limiting texts to 160 characters.

ON STANDBY
The Army's Employee Assistance Program (EAP) provides training to supervisors about the resources available and how to support employees in need of assistance. In Germany, Jannan Melendez, the U.S. Army Garrison-Ansbach EAP coordinator, said, "We all go through things that are beyond our control and that may be overwhelming at various points in our lives." (Photo by Amy Stork, U.S. Army Garrison-Ansbach)

Currently, Cunningham said, ASAP and the EAP are doing telehealth intake, evaluation, referral and follow-up. In the Before Times, those seeking help from the EAP went to the local office at the installation, filled out forms and spoke with the staff in person. That's valuable but currently impossible. In addition, ASAP's mandatory in-person annual training for Army civilians on how ASAP works has been suspended because of the pandemic.

As is sometimes the case with Army programs, the Army EAP works differently than a private sector EAP that might be part of an employee's health insurance. Many health insurance plans have an EAP benefit that will provide short-term counseling for the employee and family members at little or no cost. (Army civilians and contractors should look at their health insurance plan's benefits package.) In the Army's case, EAP coordinators (EAPCs) can do intake and evaluation, Dixon said. EAPCs will work with the individual to find out what resources are available to them—usually through their health insurance plans—and help clients access those benefits, Dixon said.

There are any number of issues people face that they can get help with by finding the right person or people to talk to— even without a pandemic.

A PATH TO RECOVERY
Lisa Lofton-Berry, of Fort Bragg's Employee Assistance Program, an office within the Army Substance Abuse Program, was interviewed in September by local media about National Recovery Month on Fort Bragg, North Carolina. "It's important to educate [people] that substance use treatment and mental health services can enable those with mental and substance use disorders to live healthy and rewarding lives," she said. (Photo by Elvia Kelly, Fort Bragg Public Affairs Office)

FOCUSED ON SOLUTIONS
Juanita Meadley, the 501st Military Intelligence Brigade's Military and Family Life Counselor (MFLC), told groups at her station that the MFLC program is able to provide non-medical, solution-focused counseling for issues such as anger management, communication, relocation adjustment and separation during the brigade's Behavioral Health Fair on Jan. 28 at Zoeckler Gym on U.S. Army Garrison Humphreys, South Korea. (Photo by Capt. Kurt Van Slooten, 501st Military Intelligence Brigade)

ADDITIONAL HELP IS AVAILABLE

Research has shown that people under stress are not at their decision-making best. But military and civilian personnel alike should keep in mind that there are resources available outside of the EAP and ASAP. Cunningham said, "We try to take advantage of the chaplain on post." That's not the only opportunity. For those dealing with grief, for example, churches and other organizations have groups where people can meet—these days, virtually—to share what they're going through and to find comfort with those experiencing similar challenges. "A really big loss—of a child, you know, loss of a spouse—you've just got to find the group that can give you an outlet," Cunningham said.

There are any number of issues people face that they can get help with by finding the right person or people to talk to—even without a pandemic, he said. ASAP and the Army EAP cover "everything from sexual assault, to suicide to drugs and alcohol … anything to do with … personnel issues pertaining to a Soldier." The issues aren't limited to those that are potentially life threatening, or that necessarily involve a Soldier, though the Soldier is the primary focus. Cunningham said the Army also makes services available internationally. "The Army has a counseling program that we run for adolescents in DOD schools" in Europe and elsewhere, for example.

The program has "about 30 counselors right now, placed in DODEA [Department of Defense Education Activity] school systems in Germany and Italy, Korea, Hawaii, that will see DOD dependents and talk issues with them from a counseling perspective. They can actually go into deep counseling with the students."

Since the pandemic began, Cunningham said, "We have seen an increase in counseling, and it's more from a stress side." That includes domestic issues, a broad category.

Every installation has an EAP resource, he said. "Depending on its size, there may be more than one EAPC."

HOW TO FIND ASSISTANCE

The Army's Employee Assistance Program falls under the ASAP umbrella. To find an installation's EAP or ASAP, go to the installation homepage and search. According to Cunningham, there isn't a strict standard for how the homepage displays the contact information, so it may be different from one installation to another.

The Army Resilience Directorate's homepage, covering an array of resources, is **https://www.armyresilience.army.mil**; or go

directly to the directorate's ASAP page, **https://www.armyresil-ience.army.mil/substance/index.html**.

In the left sidebar menu, click on ASAP locations, which will provide a list of all ASAP resources worldwide.

Another resource is the Military and Family Life Counseling Program, accessible via Military OneSource. This program is for military personnel and expeditionary civilians.

Those who would prefer to find resources independently from the Army can reach out to their health insurance provider. Cunning-ham cautioned that, while an individual provider might be listed as accepting Aetna, for example, they might not be taking new clients.

Another source of information and resources for military person-nel and families is Soldier and Family Resources at **https://www.army.mil/soldierresources/**, which lists a wide variety of services, with links to many different types of needs.

Those searching for services by location can find a list of all garri-sons and contact information at **https://home.army.mil/imcom/index.php/garrisons**. In addition, the Army produces an app called Digital Garrison, which provides information on a wide variety of services, events and other information at each Army garri-son, including how to access the EAP or ASAP. It's available on Google Play for Android devices (**https://play.google.com/store/apps/details?id=com.aafes.digitalgarrison&hl=en_US&gl=US**)

The Army offers lots of benefits to both military and civilian personnel, but sometimes finding them can be more difficult than taking advantage of them.

and the Apple App Store (**https://apps.apple.com/us/app/digital-garrison/id1484777325**) for iOS devices.

CONCLUSION

In the same way that ordinary circumstances can be made more stressful by the pandemic, inherently stressful situations—the death of a loved one, children in trouble, divorce, financial issues—can get worse in the strange, silent COVID hurricane. There are resources available, but like a lot of things in govern-ment employment, military or civilian, you have to find them. It's best not to wait until a crisis to do your crisis planning. Do it before the going gets tough.

—STEVE STARK

CONFIDENTIAL SUPPORT
Dr. John Kaiser, Employee Assistance Program coordinator, works as the community readiness and resilience integrator as well as the health promotion officer at U.S. Army Garrison Wiesbaden in Germany. "Information is key to reducing stress and we want to make sure we are taking care of ourselves through this difficult time," he said. (Photo by Sgt. Elizabeth Clark, 7th Mobile Public Affairs Detachment)

ON THE
MOVE

PROGRAM EXECUTIVE OFFICE FOR AVIATION

1. RETIREMENT CAPS 35-YEAR CAREER

John Mull accepted a memento from Program Executive Officer (PEO) **Brig. Gen. Rob Barrie** during a retirement ceremony in Mull's honor Dec. 9 at the PEO Aviation headquarters on Redstone Arsenal, Alabama. Mull began his 35-year career in 1985, working as an Army intern at Fort Benning, Georgia. He worked for numerous Army organizations during his career before serving as the director of G-8 Business Management at PEO Aviation headquarters—a position he's held for the past 15 years. Incoming G-8 **Connie Goodwin** joins the PEO Aviation headquarters staff after previously serving as the Business Management Division chief for the Unmanned Aircraft Systems project office. (Photo by Michelle Miller, PEO Aviation)

2. PEO AVIATION G-2 CHANGES HANDS

Earl Montgomery, who served as the PEO Aviation G-2 intelligence and security director, retired in February following 12 years of civilian service. An Army veteran with 22 years of service in the military police, he also worked in private industry before becoming an Army civilian. The PEO welcomes incoming G-2 director **Elizabeth Stolz**, formerly of PEO Missiles and Space.

3. RETIRING PM HONORED FOR HIS CONRIBUTIONS

Col. John Vannoy delivered remarks at his retirement ceremony Oct. 30 at the Redstone Test Center hangar on Redstone Arsenal. Vannoy had served as the project manager of PEO Aviation's Multinational Aviation Special Project Office since 2018. His career began in 1991 when he was commissioned as a distinguished graduate through the Reserve Officers' Training Corps in the Aviation Branch. During his retirement ceremony, Vannoy was awarded the Legion of Merit and the Honorable Order of Saint Michael, Silver Award from the Army Aviation Association of America. The Order of Saint Michael recognizes individuals who have made significant contributions to the promotion of Army Aviation. (Photo by Monica Ludwig, PEO Aviation)

PROGRAM EXECUTIVE OFFICE FOR COMBAT SUPPORT & COMBAT SERVICE SUPPORT

4. MERGER JOINS PRODUCT MANAGERS UGV AND RAS

The Program Executive Office for Combat Support & Combat Service Support (PEO CS&CSS) held a ceremony Jan. 14 at Selfridge Air National Guard Base, Michigan, to mark the merger of Product Manager Unmanned Ground Vehicles (UGV) into Product Manager Robotic and Autonomous Systems (RAS). During the event, **Lt. Col. Keith Toney**, RAS product manager, left, and outgoing UGV Product Manager **Lou Anulare**, right, unveiled the new RAS crest for the first time. This ceremony formalized the merger of all the programs and acquisition professionals previously under the purview of the Product Manager for Unmanned Ground Vehicles into the Product Manager RAS charter, which was issued in June 2020 under Toney's direction and leadership. **Col. Shane Sullivan**, project manager for Force Projection, officiated the event, which saw Anulare retire his charter and officially transfer the program of record to Toney.

During the ceremony, Anulare was awarded the Meritorious Civilian Service Medal for his exceptional leadership, dedication to duty and support of Product Manager UGV. He was also recognized by the Explosive Ordnance Corps with the Exalted Order of the Royal Defuzilier Award for his leadership on the Common Robotics System – Heavy, Common Robotics System – Individual and Man-Transportable Robotic System programs.

Ed Lundstrom, who served as Anulare's deputy in Product Manager UGV, presented him the UGV charter, signifying the completion of their formal relationship. Lundstrom will continue on as Toney's deputy Product Manager for RAS. Anulare now serves as the PEO CS&CSS U.S. Marine Corps liaison officer for equipment programs of mutual execution and interest. (Photo by Ted Beaupre, U.S. Army Garrison – Detroit Arsenal)

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PROGRAM EXECUTIVE OFFICE FOR MISSILES AND SPACE

1. FORMER PM CELEBRATES RETIREMENT

Program Executive Officer (PEO) for Missiles and Space **Maj. Gen. Robert A. Rasch Jr.**, left, presented the Legion of Merit Medal to **Lt. Col. Marvin B. Millar** during Millar's retirement ceremony Sept. 11, 2020, on Redstone Arsenal, Alabama. Millar was formerly the product manager for Precision Guided Munitions and Rocket Systems at the PEO. Attendance at the ceremony was limited in keeping with the Army's COVID-19 guidelines, but the event was livestreamed to family, friends and industry partners across the nation. Rasch and the PEO team wish Millar and his family well in his retirement. (Photo by Henry Norton, PEO Aviation)

ARMY OFFICER ANNOUNCEMENTS

Army Chief of Staff Gen. James C. McConville announced the following officer assignments, promotions and retirements:

ASSIGNMENTS

Brig. Gen. Edmond M. Brown, Deputy Director and Chief of Staff, Futures and Concepts Center, U.S. Army Futures Command, Joint Base Langley – Eustis, Virginia, to Commanding General, Combat Capabilities Development Command, U.S. Army Futures Command, Aberdeen Proving Ground, Maryland.

Brig. Gen. Guy M. Jones, Deputy Commanding General (Maneuver), 2nd Infantry Division (Combined), Eighth Army, Republic of Korea, to Deputy Director and Chief of Staff, Futures and Concepts Center, U.S. Army Futures Command, Joint Base Langley – Eustis, Virginia.

Brig. Gen. Jeth B. Rey, Director, J-6, U.S. Central Command, MacDill Air Force Base, Florida, to Director, Network Cross-Functional Team, Aberdeen Proving Ground, Maryland.

RETIREMENTS

Maj. Gen. Robin L. Fontes completed more than 35 years of service and concluded her distinguished career as deputy commanding general (operations), U.S. Army Cyber Command, Fort Belvoir, Virginia.

Office of the Assistant Secretary of the Army
(Acquisition, Logistics and Technology)

Mr. Douglas Bush — Acting ASA(ALT), SAAL-ZA

SGM Jacinto Garza — Sergeant Major, SAAL-ZB

Mr. Douglas Bush — Principal Deputy, SAAL-ZX

LTG Robert Marion — Principal Military Deputy, DAAC, SAAL-ZB

LTG Duane Gamble — Deputy Chief of Staff G-4 Logistics

LTG John Morrison — Deputy Chief of Staff G-6
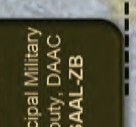
Dr. Raj Iyer — Chief Information Officer

Mr. Ray Gagne (acting) — DASA Acquisition Policy & Logistics, SAAL-ZL

Ms. Elizabeth Wilson — DASA Defense Exports & Cooperation, SAAL-ZN

Mr. John Daniels — DASA Plans, Programs & Resources, SAAL-ZR

Dr. Philip Perconti — DASA Research & Technology, SAAL-ZT

Ms. Rebecca Weirick — DASA Procurement and Army Acquisition Executive, SAAL-ZP

COL Christopher Schneider — Deputy for Acquisition & Systems Management, SAAL-ZS

Ms. Margaret Boatner — Acting DASA Strategy & Acquisition Reform, SAAL-ZF

Ms. Jeannette Evans-Morgis — Chief Systems Engineer, SAAL-ZE

Dr. William Cohen — Chief Technology Officer

Mr. Tim Goddette — PEO CS & CSS

BG Robert Collins — PEO C3T

BG Robert Barrie — PEO Aviation

BG Vincent Malone — JPEO Armaments & Ammunition

MG Robert Rasch — PEO Missiles & Space

BG Michael Sloane — PEO IEW&S

BG Glenn Dean — PEO GCS

Mr. Ross Guckert — PEO EIS

LTG L. Neil Thurgood — Director Hypersonics, Directed Energy, Space & Rapid Acquisition

Dr. Jason Roos — JPEO CBRND

Ms. Karen Saunders — PEO STRI

BG Anthony Potts — PEO Soldier

Mr. Michael Abaie — PEO ACWA

Mr. Craig Spisak — Director USAASC

"In the acquisition business, meeting our commitments is crucial. Our warfighters depend on us to deliver a capability, i.e., a radio, tank, helicopter, on a specific date to a specific location. In fact, the entire Army depends on us. When a program is delayed by six months or even three months, there is a tidal wave felt throughout the Army."

Lt. Gen. Robert L. Marion
Principal Military Deputy to the ASA(ALT)
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PIN: 208559-000

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