SUSTAINING MISSION OPTEMPO
AMIDST A GLOBAL PANDEMIC

COMMANDER’S CORNER

LTG Douglas Gabram
Commanding General
U.S. Army Installation Management Command

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Col. Wilfred Rivera
Commander
Marine Depot Maintenance Command
Albany, GA

COL Bill Venable
Project Manager
Stryker Brigade Combat Team
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LEVERAGING NETWORK TO COUNTER VIRAL ADVANCE
The U.S. Army Futures Command (AFC) leads a continuous and agile transformation of Army modernization to enable warfighters to dominate the future battlefield.
By Dr. Shawn M. Walsh

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Anniston, AL

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By Brian Jones

Cover: Strykers from 2nd Squadron, 2nd Cavalry Regiment, convoy during Platoon Live Fire Exercise on Grafenwoehr Training Area, Germany. (U.S. Army)
As the nation continues to adjust to life amidst an ongoing global pandemic, the U.S. Department of Defense must and will continue to keep the country safe. The October 2020 edition of Armor & Mobility represents Tactical Defense Media's annual AUSA and Modern Day Marine issue and we think A&M readers will benefit from knowing that DoD's work stays on mission, virus or no virus.

Representing Army modernization and the evolution of a force poised to defeat any enemy, U.S. Army Futures Command (AFC) rightly leads this issue off with an in-depth look at ways the world's greatest fighting organization will meet flexibility demands for combat readiness even when the threat isn't visible to the naked eye. Protecting Army personnel, both military and civilian, on a global scale is at the heart of what U.S. Army Installation Management Command (IMCOM) is tasked with every day. In an interview with LTG Doug Gabram, IMCOM Commanding General, we learn about the importance that the health of Forward Operating Bases (FOBs) has on the overall physical and mental health of a combat-ready force.

The roots of an effective military can be traced to the very corners of its hard-working depots and lifecycle management centers. An exclusive interview with COL Marvin Walker, Commander, Anniston Army Depot, speaks to efforts to incorporate additional levels of safety to address COVID-19 without compromising optempo in targeted upgrades to critical ground combat systems. On the Marine Corps front, a focus on flexible modernization to better accommodate force design is at the core of Col. Wilfred Rivera's mission at the Marine Depot Maintenance Command, Albany, GA. That same modernization flexibility is happening at Naval Supply Systems Command (NAVSUP) and its Weapon Systems Support (WSS) division responsible for balancing supply chain and audit readiness.

From systems sustainment to mounted operability, the latest in Mounted Mission Command (MMC) is poised to enable greater field-level comms effectiveness thanks to a partnering of Program Executive Offices across a wide swath of Army tactical sensory capabilities. Shifting gears to mobile protected firepower, safety improvements to the Army's trusted, nearly phased out Stryker program are making this highly-versatile medium ground combat platform safer with double v-hull (DVH), networking, and lethality to address current and future threat engagements.

As important as weapons are to neutralizing the enemy so is the information necessary to finding one's foe. In a special to A&M, Dr. Bull Holland, a former Army officer and senior aerospace engineer, offers insight into the importance of proactive research in setting the stage for targeted reconnaissance, enabling field commanders to make critical combat decisions without doubt.

We welcome your comments and suggestions. Thank you for the continued readership!
LEVERAGING NETWORK TO COUNTER VIRAL ADVANCE

The U.S. Army Futures Command (AFC) leads a continuous and agile transformation of Army modernization in order to provide future warfighters with the concepts, capabilities and organizational structures they need to dominate a future battlefield. This agility enables AFC to pivot its diverse network of scientific and technological expertise to rapidly contribute COVID-19 countermeasures to protect warfighters and civilians alike.

By Dr. Shawn M. Walsh, Combat Capabilities Development Command’s Army Research Laboratory

A scientist with the Emerging Infectious Disease branch at the Walter Reed Army Institute of Research (WRAIR) conducts studies in order to find a solution for the COVID-19 Coronavirus. The Emerging Infectious Diseases branch, established in 2018, has the explicit mission to survey, anticipate and counter the mounting threat of emerging infectious diseases of key importance to U.S. forces in the homeland and abroad. (U.S. Army photo by Shawn Fury)

COVID-19 is an emergent and disruptive disease caused by infection from the SARS-CoV-2 virus, and was declared a pandemic by the World Health Organization on March 11, 2020. It is a contagious disease that threatens the health and well-being of billions of people around the world. Research efforts between the U.S. Army Combat Capabilities Development Command, or CCDC, and the U.S. Army Medical Research and Development Command, or MRDC, give innovators across the U.S. Army Futures Command, or AFC, the opportunity to pivot their talent and technology to help combat this deadly disease.

TEAM OF TEAMS APPROACH

Prior to the emergence of the COVID-19 pandemic, CCDC was already committed to exploring the transformational potential of synthetic biology. It is theoretically possible to develop materials that, like living organisms, can adapt and blend visually and thermally with their surroundings. This adaptive ability could lead to materials that better conceal Soldiers from potential detection when moving from one mission operating environment to another.

On the path to such transformational future Soldier capabilities, scientists and engineers from the CCDC Army Research Laboratory’s, or CCDC ARL’s, synthetic biology research area were able to rapidly pivot to make immediate contributions to COVID-19 countermeasure research. Together, CCDC and MRDC united a diverse and complementary national network of innovators to develop a new antibody discovery platform. They produced potent human antibodies that bind SARS-CoV-2 spike proteins, which the virus uses to gain entry into cells and inhibit infection in otherwise healthy cells. Researchers from the University of Texas at Austin and the National Institutes of Health published their 3-D atomic scale...
map of the part of the SARS-CoV-2 virus in the journal Science, Feb. 19, 2020. The map details the spike protein structure, which the virus uses to attach to and infect human cells. Availability of the new spike protein map triggered nearby researchers at ARL South to initiate an effort to explore antibody mechanisms that neutralize the virus.

CCDC ARL, including its regional sites in Texas, California, Chicago and Boston, laced together an agile national synthetic biology innovation network to explore new materials and processes for future Soldier capabilities. As shown in Figure 1, this innovation network allowed the laboratory and its national ecosystem to rapidly collaborate with university and industry experts working to develop potential COVID-19 countermeasures.

InDi Molecular, Inc., University of Washington Institute of Systems Biology, Texas A&M University, and the University of Texas at Austin collaborated with the Army on this work. MRDC provided CCDC ARL with rapid connectivity to testing and evaluation expertise at the Walter Reed Army Institute of Research, or WRAIR, and the U.S. Army Medical Research Institute of Infectious Diseases, or USAMRIID, both subordinate commands of MRDC. As a result of this swift and agile teaming, pharmacokinetic and toxicology studies of the most promising virus-neutralizing candidates have been performed. Cocktails of antibodies are currently being assembled from neutralizing monoclonal antibodies to distinct epitopes on the virus.

**VIRUS DETECTION: ANTICIPATE AND COUNTER**

Army medical research has played an important role in national defense throughout history by continually responding to emerging threats. Adenovirus, influenza, meningococcal diseases, hepatitis A and B, and Japanese encephalitis vaccines all had roots in Army research and development programs. As a key component within the AFC structure, MRDC is on the forefront of a number of key efforts to prevent, detect and treat COVID-19 by applying existing field-leading research capabilities, a global research network, and established partnerships with industry and academia to support the whole-of-government response to COVID-19. “The work being done by our scientists is yielding promising results,” said Brig. Gen. Michael J. Talley, Commanding General of MRDC and Fort Detrick. “We’re all working towards a solution, and we want to get it done as quickly as possible.”

In support of this response to accelerate the development of a COVID-19 vaccine, WRAIR developed a vaccine prototype as well as two backup candidates; all of which are in the process of production and expected to start Phase 1 first-in-human clinical trials in the fall. Other research is ongoing as well, utilizing artificial intelligence and high-throughput testing to identify new COVID-19 treatments as well as working closely with military medical treatment facilities to advance new diagnostics tests.

USAMRIID is the DOD’s lead laboratory for medical countermeasure research to protect Service members from biological threats and emerging infectious diseases. The Institute is contributing to the COVID-19 research effort by developing both small and large animal models of infection that are critical for testing vaccines and treatments for human use. USAMRIID is working to improve the speed, capacity and portability of COVID-19 testing to support operational readiness. The Institute’s extensive containment laboratories allow researchers to safely handle the SARS-CoV-2 virus while conducting multiple studies. Its specialized aerosol technology allows researchers to explore the course of disease by the inhalation route, as well as to evaluate the virus for its ability to remain infectious in an aerosol form.

“CCDC elements such as ARL and several of our research and development centers were able to pivot to supporting the COVID-19 response and deliver results very quickly, which shows you the depth and quality of our workforce,” said CCDC Commander Maj. Gen. John A. George. “It demonstrated the command’s agility, but also the power of the hundreds of partnerships we have across the scientific, engineering and analytical disciplines around the world. In this case it helped us respond to a global threat to human health. In the future that same expertise and global network will be brought to bear to support American warfighters who may have to engage on battlefields that change as quickly as someone can write a new algorithm. As we execute the Army Futures Command’s strategy we are positioned to be the team that will deliver the science and technology capabilities the Joint Force will need to continue to dominate even as the pace of technological change continues to accelerate.”

Synthetic biology is just one of many unique research areas that gives AFC the ability to ensure the readiness of the current force and deliver unprecedented capability to the future force. In addition to potentially treating COVID-19 with antibodies and convalescent plasma transfusion made possible from synthetic biology, AFC successfully leveraged talent and capabilities from other Army priority research areas and cross functional teams, or CFTs.

New diagnostic tools to rapidly scan, assess and track Soldier COVID-19 symptoms and protective face coverings that meet multiple and demanding Soldier use requirements are just two examples of how AFC quickly operationalizes science and technology into new Army capability.
SOLDIER LETHALITY CFT: ENABLING RAPID SCREENING

Fever and abnormal body temperatures, though not necessarily definitive by themselves, are often early symptoms in many potential COVID-19 cases. A new device being developed by the AFC’s Soldier Lethality CFT, based on groundwork laid by CCDC’s C5ISR Center, could play a key role. The device is known as the Integrated Visual Augmentation System, or IVAS. The CCDC C5ISR Center led development of key enabling technologies for IVAS - such as novel sensors, novel displays and prisms - and capabilities which include rapid target acquisition, augmented reality, wireless connectivity with the family of weapon sights-individual, or FWS-I, and the tactical assault kit. IVAS was successfully modified and demonstrated as a possible COVID-19 diagnostic tool. The use of a Soldier-centered design approach in IVAS development made this rapid pivot to a diagnostic capability possible. The device was originally conceived as an enabling technology to make Soldiers more lethal and survivable in the increasingly complex battlespace described by the Army’s Multi-Domain Operations.

As part of the Soldier Lethality CFT, scientists and engineers from AFC’s CCDC Soldier Center, C5ISR, Data Analysis Center, and Army Research Laboratory, worked together with PEO Soldier and Microsoft to develop early and evolving versions of IVAS. The Soldier-centered design process promotes iterative refinement and validation of key IVAS capabilities and features based on feedback from multiple Soldier touch point events. The device integrates an unprecedented level of complementary functionality. This design flexibility allowed the Soldier Lethality CFT to rapidly modify the device to quickly scan and assess the temperature of Soldiers. Unlike conventional thermometers, it can measure Soldier body temperatures remotely, making it possible to scan and record as many as 300 Soldiers every 30 minutes. Such a capability has practical implications to augment other diagnostic tools for assessing and assuring Soldier health and mission readiness.

“In looking to the future of warfare, lethality and survivability go hand in hand,” said Brig. Gen. David M. Hodne, director of the Army Future Command’s Soldier Lethality CFT at Fort Benning, where he also serves as the Infantry Commandant. “While we’re maintaining momentum in pursuit of modernization, we have to keep in mind that readiness today is critical, and in that moment, with the health and wellbeing of our Soldiers paramount, being able to quickly adapt and employ IVAS as a thermometer, so to speak, was a stroke of genius on the part of the developers who immediately recognized the potential.
“As much as I personally appreciate the value of IVAS [as the Thermal Imaging for Fever Screening system] because it helps mitigate the impacts of COVID-19 on the Soldiers training here at Fort Benning, I’m thrilled that it validated the methodologies of STPs and rapid development we’re using to develop those next generation technologies we need to ensure lethality and survivability in a climate that is often hostile and always unpredictable.”

DELIVERING THE RIGHT FIT FOR FACE PROTECTION

One of the most effective lines of defense against COVID-19 has been the use of protective face coverings and mask technologies. In the earliest days of the pandemic, millions of people around the world improvised to quickly create face coverings to provide some level of protection against a SARS-CoV-2 infection. A complete and validated solution is in the best interest of our Army Soldiers, and this includes fielding the right type of face coverings and protective masks.

Drawing on its diverse expertise, CCDC worked to swiftly develop and deliver better materials and manufacturing processes to minimize Soldier exposure to the SARS-CoV-2 virus. The CCDC Chemical Biological Center teamed with Global Center for Medical Innovation, Georgia Tech Research Institute, National Aeronautical and Space Administration and Aviation and Missile Center to develop a replaceable N95 mask filter and mask design for medical personnel. ARL's Army Research Office initiated a partnership between North Carolina State and the 82nd Airborne Division Innovations Council at Fort Bragg, North Carolina. Soldiers and university researchers worked together to cut, sew and test unique filtration material for face masks that can protect medical workers, Soldiers and their dependents against the effects of COVID-19. Program managers at CCDC’s Armaments Center, Soldier Center and Chemical Biological Center with the Advanced Functional Fabrics of America Department of Defense Manufacturing Innovation Institute established individual test services agreements to characterize fabric and filtration materials used in civilian personal protective masks. AFFOA is a public-private partnership creating breakthrough, dual-use approaches to textile technologies and manufacturing, and plays a critical part in CCDC’s overall innovation network. Working with their membership and partners in the supply base, AFFOA donated 10,000 NIOSH-certified N95 protective masks to the U.S. Special Operations Forces Command in the earliest days of the pandemic. These masks were used across multiple Special Operations Forces elements to protect Service personnel and civilian DOD employees.

CCDC Soldier Center pivoted the technical expertise it uses to design future Soldier uniforms, parachutes and soft body armor to quickly design a range of face covering prototypes. Designers, material scientists, textile technologists, systems engineers and human factors experts teamed up to develop the right protective solutions for Soldiers. Testing and evaluation of the prototypes included Soldier assessments and compliance with DOD standards and Centers for Disease Control and Prevention requirements for COVID-19. Soldier ratings helped identify the best design for immediate use and enabled CCDC Soldier Center to deliver recommendations to PEO Soldier – Project Manager Soldier Survivability for production efforts.

“I've seen firsthand how the installation partners at the Natick Soldier Systems Center step up to help solve DOD’s challenges and provide the best for our Soldiers,” said Brig. Gen. James Bienlien, deputy commanding general of the Combat Capabilities Development Command and the senior commander of the Natick Soldier Systems Center. “The quick turn-around in creating face-mask prototypes accomplished by the CCDC Soldier Center underscores the innovation that is at the very heart of the Army Futures Command.”

FUTURE FOCUSED, PERIPHERALLY APPLIED

Soldier face coverings, thermal-based diagnostic tools and potential COVID-19 therapeutic countermeasures are only a small fraction of the contributions AFC has made directly and indirectly to keep Soldiers safe, healthy and mission ready. AFC’s contributions to the COVID-19 fight benefit our larger society as well, in the same way AFC benefits from tapping into a vast national and international innovation ecosystem. However, AFC has a mission to lead the Army’s modernization enterprise and deliver the right capabilities on the right time horizons to the future force.

As shown in Figure 2, AFC’s inherent agility allows it to respond to an emergent threat like COVID-19, but still remain unwaveringly focused on operationalizing science to create transformational overmatch and capability for the future force. Material by Design, the Science of Additive Manufacturing and Synthetic Biology are all Army priority research areas from the 2019 Army Modernization Strategy. Similarly, IVAS is a critical component of the Army’s Soldier Lethality CFT. This allows AFC to remain future focused but peripherally apply new knowledge, tools and technologies for near term impact.

FORGING AHEAD

Responding to emergent threats is nothing new to the Army. The resilience and resourcefulness needed to rapidly muster innovative countermeasures is exemplified every day by Soldiers and the civilians who support them. More than ever, warfighters rely on rapid advances from a wide range of scientific and medical communities to keep them safe, protected and mission ready.
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Colonel Walker received his commission in the Ordnance Corps in 1996. His initial assignment was to the 1-43 Air Defense Artillery Battalion, Suwon, Korea, as a Shop Officer. He was subsequently assigned to Fort Benning, Ga., where he served as both Shop Officer and Support Operations Maintenance Officer.

In 1999, he completed the Combined Logistics Officer Advanced Course and Combined Arms Services and Staff School and was assigned to the 64th Corps Support Group (CSG) as a Battalion S3. He next commanded the 597th Maintenance Co., 13th Corps Support Battalion. Following Company Command, he was assigned to the National Training Center (NTC) as an Observer Controller. He deployed to Kuwait and served as the Support Operations Officer for the 401st Army Field Support Brigade (AFSB). He served as Executive Officer to both the Army G4 Supply Director and the Deputy G4. Thereafter, he was assigned to the 18th Airborne Corps C4 in Iraq where he served as Chief of Materiel Readiness. Upon return from deployment, he was assigned to the 82d Sustainment Brigade as a Battalion Executive Officer. He was assigned to the Defense Logistics Agency Troop Support as Operations Division Chief. He deployed to Afghanistan and assumed command of 3-401st Army Field Support Battalion (AFSBn). He also served as Chief of Global Sourcing, Joint Staff J4, Washington, D.C.

Prior to his arrival at Anniston Army Depot in July 2019, he deployed with the 1st Theater Sustainment Command (TSC), where he served as the Strategic Plans Chief in support of Operation Inherent Resolve.

He is a graduate of Command and General Staff College, the Joint and Combined Warfighting School, and the United States Air War College. He holds a Master of Arts in Strategic Studies from the U.S. Air War College, a Master of Arts in Human Resource Management from Webster University and a Bachelor of Arts in Political Science from Dillard University.

A&M had the opportunity to speak with COL Marvin Walker, Commander, Anniston Army Depot, on various mission sets the depot has and continues to pursue to maintain optempo despite challenges during the current global COVID-19 pandemic. Among some of those efforts are ongoing SepV3 upgrades to M1A2 Abrams and M109A7 Paladin as well as 1790 Hercules engines and X1100 transmissions, all with full adherence to critical protocols addressing military and civilian personnel safety.
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A&M: With the Army taking a leading role in DoD’s response to the COVID-19 pandemic, how has ANAD been reflecting initiatives?

COL Walker: ANAD, as part of the Defense Industrial Base, is designated as Critical Infrastructure. Since the onset of COVID-19, we have maintained essential support that continues to enable the fight for our warfighters both home and abroad. With that, the safety of the workforce has been and continues to be my priority. We are very proud of our ability to sustain the pace of our operations while also protecting our workforce and the surrounding community.

A&M: As the “new normal” becomes clearer in the ongoing fight with Coronavirus, how do you see ANAD processes changing?

COL Walker: Even with the new normal, we have very resilient employees. We have adapted and become accustomed to the safety protocols of wearing face coverings, social distancing, using disinfectants, conducting meetings via conference calls, and limiting group interaction. It is difficult to do in some operations, based on space and the type of equipment we work on. However, changes have been incorporated and employees have taken ownership of the process and their safety. Essentially, we have changed the culture of long standing norms in a very short amount of time. This could not have happened with the unified cohesion, guidance and synchronization of leadership within the Army Materiel Command and DoD.

A&M: In terms of standards upgrades in depot-level practices, what are some current/forward-looking example programs?

COL Walker: Some of our current programs include M1s for the 11th ACR, Repair Cycle Floats, to include Paladins, FAASVs, Towed Artillery and M1FOVs. Also included are partnership programs such as the M1A2 SEPv3 and Paladin M109A7, and Army Readiness drivers 1790 Hercules Engines, V6 Engines, and X1100 Transmissions. We are forecasting work on these programs over the next two fiscal years. The depot represents a broad array of support with both traditional support and public private partners. Working closely with our partners we are continuously reinvigorating our processes to stay in line with the latest technological advances. ANAD has long standing relationships with major ground combat vehicle manufacturers, General Dynamics Land Systems, BAE Systems and Leonardo DRS. We also partner with major component providers like Honeywell and Raytheon. These relationships are continuously cultivated through practices of mutual respect and sharing of best practices. Partnering on new system production and system upgrades provides best value for lifecycle managers by combining resources during the procurement and operation and sustainment lifecycle phases. Additionally, ANAD continues to modernize facilities and equipment in advance of future requirements. For example, we are currently modifying facilities to accommodate future sustainment requirements for the Extended Range Cannon Artillery. This includes both the self-propelled and towed. The goal is to manage emerging technologies for equipment through proactive and progressive planning.

A&M: Any other challenges/goals/achievements looking ahead?

COL Walker: Our goal is to achieve 100 percent of requirements on time. We measure that goal as Performance to Promise (P2P). ANAD will finish FY20 at ~99% P2P. Looking forward our goal for FY21 is to finish at 100% P2P. With our dedicated workforce, I believe that will happen.
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Colonel Bill Venable is the current Project Manager, Stryker Brigade Combat Team, Program Executive Office Ground Combat Systems. He has served in a variety of command and staff positions including: Infantry Rifle Platoon Leader and Company Executive Officer with the 2nd Infantry Division, Fort Lewis, WA and Battalion S3-Air, Battalion S4, Infantry Rifle Company Commander, and Aide de Camp to the Commanding General, 25th Infantry Division, Schofield Barracks, HI. Since 2006, he has served as an Acquisition Officer in a variety of positions including: Assistant Project Manager for Project Manager – Infantry Brigade Combat Team, Warren, MI; ASA(AL T) Operations Officer for the U.S. Army Network Integration Evaluation, Fort Bliss, TX, and the Department of the Army (ASA(AL T)) Trailboss for Capability Set 13 Network Modernization, Arlington, VA. From December 2013 to August 2016, he served as the Product Manager for Common Systems Integration (ground control), in the U.S. Army’s Unmanned Aircraft Systems Project Office, Redstone Arsenal, AL. His most recent assignments include Branch Chief, Electronics and Special Developments, Maneuver Center of Excellence, Fort Benning, GA and Director, ASA(AL T), Forward CENTCOM, Camp Arifjan, Kuwait. His deployments include Operation Iraqi Freedom, Operation Enduring Freedom, Operation Resolute Support, and Operation Freedom’s Sentinel.

The National Military Strategy requires an Army that is rapidly deployable and strategically responsive across the full spectrum of operations. As the primary combat and combat support platform of the Stryker Brigade Combat Team, the Stryker Family of Vehicles fulfill an immediate requirement for a strategically deployable (C-17/C-5) brigade capable of rapid movement worldwide in a combat-ready configuration. Initiated in 1999 by then Army Chief of Staff General Eric Shinseki, the Stryker was meant to fill a capability gap between heavily armed but less deployable vehicles like the M2 Bradley and light weight vehicles like the Humvee. It was expected the Stryker would eventually be phased out. Now 20 years later the Stryker has proven to be a versatile platform with room for growth built into the design at the forefront. Stryker Brigade Combat Team Project Manager Colonel William Venable discussed the platform with Armor & Mobility, its capabilities and its future.

A&M: How would you assess the Stryker’s success since it was originally conceived?

COL Venable: The platform has clearly proven itself over the years. Stryker vehicles provide the warfighter with a combat-proven, versatile with a broad range of capabilities on a common platform. Part of the success of the Stryker program can be attributed to the way the platform allows us to leverage non-developmental capabilities with common subsystems and components to allow rapid acquisition and fielding. We stress commonality to reduce the logistics footprint and minimize costs, while maximizing performance. The latest generation of Strykers, the DVHA1, includes significant survivability and capability enhancements.

A&M: How many different Strykers do you manage through the Stryker Brigade Combat Team Project Office?

COL Venable: The Stryker Family of Vehicles is built on a common chassis utilizing different Mission Equipment Packages to achieve required capabilities. There are currently more than 2 dozen variants across the 3 generations of several thousand Stryker platforms in the field. Variants include the Infantry Carrier Vehicle (ICV), Mobile Gun System (MGS), Reconnaissance Vehicle (RV), Mortar Carrier (MC), Commander’s Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), Anti-tank Guided Missile (ATGM) Vehicle, Nuclear Chemical Reconnaissance Vehicle (NBCRV), and ICV-Dragoon (ICVD). We also have seven Double-V- Hull (DVH) variants for
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the following; ICV, CV, MEV, MC, ATGM, FSV and ESV. Additionally we have improved these same DVH variants to include greater horsepower and electrical output. We’ve also made improvements to the suspension and built-in vehicle network capabilities. Those improvements to the DVH are captured in the A1 configuration.

A&M: Can you expand on the DVH A1 configuration more?

COL Venable: This DVH A1 is the future of the Stryker platform for the next 30 years as the Stryker. This vehicle is anticipated to form the capability basis of the Stryker formation through 2050. The DVH A1 improvements will allow the platform to accept future capabilities and upgrades. The A1 improves upon the original DVH with improved protection, power, mobility and payload capacity. Specific improvements include an upgrade to a 450-horsepower engine and upgraded power pack thermal management system. We’ve also improved environmental conditioning to keep Soldiers cooler. We’ve been able to significantly upgrade the power generation with a larger alternator and smart power management features. Our payload capacity and mobility are improved with chassis and suspension upgrades. The vehicle’s data network is expanded to commander’s and driver’s stations. So we’ve managed to pack some significant upgrades into the DVH A1.

A&M: Can you discuss improvements to the vehicles lethality?

COL Venable: We are increasing the Stryker’s lethality through three main efforts; We’re replacing the current Remote Weapons Station with the Common Remotely Operated Weapons Station and integrating the Javelin missile system into a new system called CROWS-J. We’re upgrading our current Anti-Tank Guided Missile system with the Modified Improved Target Acquisition System (MITAS) and a networked lethality capability allowing multiple systems to process target data in cooperation with each other. And we’re fielding the Medium Caliber Weapon System (MCWS), a Program of Record 30mm turreted cannon. The MCWS is an improved direct fire capability compared to what was fielded 2nd Cavalry Regiment on flat bottom Strykers. Improvements include integration on a DVH A1 Stryker (better mobility and survivability), better optics and improved situational awareness.

The ATGM upgrades bring the Stryker ATGM platform in line with the capabilities that currently reside in the Infantry Brigade Combat Teams and Armored Brigade Combat Teams. Specifically, we are upgrading the Modified Target Acquisition System (MITAS) which is greatly enhanced by the Precision Far Target Locator (pFTL), Image Enhancement (IE), and the capability to use Network Lethality (NL) to share real-time battlefield information on targets between platforms. The NL enhancement provides the capability for a Stryker ATGM Crew to pass target information to another Stryker ATGM Crew in a more favorable engagement location.

CROWS-J will provide the ability to engage armor targets with the highly-capable Javelin missile system under armor. It provides a significant standoff advantage and overmatch capability against likely near-peer adversaries. This development also addresses obsolescence and provides a growth potential, including network lethality.

A&M: How do these improvements keep pace with Army network development?

COL Venable: The DVH A1, as a digitized platform is ready to accept the future Army network as it comes on board in the next few years. We are already moving out on integration of future systems, such as Bloodhound, the Integrated Visual Augmentation System (IVAS) and the next generation of tactical data networks. In the coming years, Stryker Brigade Combat Teams will be among the most connected fighting formations in the US Army.
Lieutenant General Douglas M. Gabram assumed command of U. S. Army Installation Management Command January 22, 2020. He is responsible for delivering quality base support from the Strategic Support Area enabling readiness for a globally responsive Army at 75 installations across the world.

He most recently served as the Director for Test at the Missile Defense Agency, responsible for planning, programming, budgeting, and implementing a comprehensive Ballistic Missile Defense System (BMDS) test program to field an integrated and effective capability to joint force.

LTG Gabram received his commission as a Distinguished Military Graduate from Bowling Green State University, Ohio, in 1984. His commands include Commanding General, Army Aviation and Missile Command; Commander, 1st Air Cavalry Brigade, 1st Cavalry Division; Commander, 1st Battalion 101st Aviation Regiment, 101st Airborne Division (Air Assault); and, Bravo Company Commander, 1st Battalion, 101st Aviation Regiment, 101st Airborne Division (Air Assault). Other assignments include Deputy Chief of Staff, G-3/5/7, U.S. Army Training and Doctrine Command; Deputy Commander (Support), 1st Cavalry Division “Americas First Team”; Deputy Commander, U.S. Army Aviation Center of Excellence; and Chief of Staff, 1st Cavalry Division.

His combat deployments include two tours to Afghanistan, Operation Enduring Freedom/Resolute Support with the 1st Cavalry Division as the Division Chief of Staff, Deputy Commander, and TAAC-South Commander; three tours to Iraq as part of Operation Iraqi Freedom, twice as a Battalion Commander with the 101st Airborne Division (Air Assault), and once as a Brigade Commander with the 1st Cavalry Division; one tour to Bosnia in Operation Joint Guard and Macedonia as part of Operation Joint Endeavor, and one tour to Saudi Arabia for Operation Desert Shield/Storm.

He holds a Master’s degree from Central Michigan University in Business Administration, and completed a Senior Service College Fellowship at the University of Texas, Austin.

His decorations include the Distinguished Service Medal (1 OLC), Legion of Merit (2 OLC), the Bronze Star Medal (silver OLC and 1 bronze OLC), the Defense Meritorious Service Medal, the Meritorious Service Medal (silver OLC), the Air Medal for Valor, the Air Medal (w/numeral 4), the Joint Service Commendation Medal (w/ 1 bronze OLC), the Army Commendation Medals (w/1 bronze OLC), and the Army Achievement Medal. He has been awarded the Air Assault and Airborne Badges. He is a Master Aviator with over 2,500 flight hours, qualified on the UH-1H, OH-58A/C, AH-1, AH-64A, and the AH-64D Longbow Apache.
We are the United States Army and we’re going to win the fights we take on, and our battle against this virus is no different. However, the battlefield geography and combat conditions are very different from what we are used to. For the first time in a long time, we are in a home game. Our installations are our Forward Operating Bases, and our families are right there battling alongside us.

I know the 75 Garrison Commanders and Command Sergeants Major who lead our teams of professionals never expected their IMCOM tours to be in a combat environment either, but they are. The enemy’s Center of Gravity (COG) is its ability to move from one host to another. To get at that, we established early on the 3 Ps to live by: Protect yourself, so we can Protect the force, so the force can Protect the nation. The friendly COG is the talent, initiative and steady leadership of our Garrison Commanders. Their sharing of lessons learned and best practices has benefitted Soldiers, Civilians and Families in ways that kept our people safe, and our Army ready. In the spring we remained focused on the enemy, but over the last several months have opened our site picture to (re)establish mission command for other important Army priorities like housing, PCS moves, child care, spouse employment, and the Facility Investment Plan.

A&M: With challenges brought about since the advent of COVID-19, what are some adaptations IMCOM has/continues to implement to win the fight CONUS and OCONUS?

LTG Gabram: We first made contact with the enemy at our FOB in Daegu, Korea, in February. This was the first outbreak outside of Wuhan, China. On day one the city identified its first case and a week later there were a thousand. The garrison command teams deftly applied leadership to innovate tactics, techniques and procedures (TTP) to trace down the contacts of those testing positive, and to sanitize critical facilities to keep them open. In this OCONUS environment with host nation restrictions and other operational constraints, we quickly identified The Exchange and Commissary as key terrain. I refer to them as our Alamo; we will protect them and they will not close.
LTG Gabram visits the Child Development Center at Joint Base San Antonio- Fort Sam Houston. Lt. Gen. Gabram met with the CDC director and staff to discuss how they are operating during the COVID-19 pandemic. (Photo by Brittany Nelson)

Camp Humphreys, USAG Italy in Vicenza, and our garrisons in Germany were the next to make contact. The lessons learned and shared from Korea were improved and further shared across IMCOM, the Army, and the DoD. I don’t know if we’ll ever fully appreciate the benefit to our nation realized from these Garrison and Senior Commanders’ decisive action and creativity in those early days.

One innovation I’m particularly proud of is the cooperation between garrison housing services offices, directorates of public works, and their RCI housing partners to develop creative solutions to fix maintenance issues in privatized housing while operating in a COVID environment. For example, these partners developed systems for residents to submit photos of required work and receive repair parts at their home to install themselves; often with the aid of a qualified technician on the other end of a video chat to guide the process. Not only does this build a family’s self-reliance, such innovations helped clear the vast majority of backlogged work orders which eases the transition for thousands of Soldiers and Families as they PCS.

Another innovation is virtual battlefield circulation. Modern technology makes it easier to execute mission command of a globally dispersed force, and we’ve leveraged it to remain connected and mutually supportive. Engaged, connected, and innovative leaders are a force multiplier in this fight.

A&M: What do you see as the major long-term effects from COVID at IMCOM?

LTG Gabram: Any good unit benefits from shared hardship, danger and sacrifice. Our garrison commanders and their teams of professionals are now battle-tested. The confidence we are gaining from going through this fight together is making us more connected, more resilient, and more collaborative. We must fight complacency with discipline. Discipline = DMH (Distance, Mask, Hygiene). This period of reduced or no income for some of our MWR services will require us to look hard at some re-shaping options to ensure a profitable future that still provides Soldiers and Families with the services they require at a quality level they deserve.

A&M: What are some examples of IMCOM ingenuity during the pandemic?

LTG Gabram: There have been many. In Daegu, Korea in February, our team quickly figured out how to build teams to conduct, document, and publicly share contact tracing information. Here at the headquarters, we built a SharePoint repository of best practices and lessons learned that garrison commanders made use of to prepare for the pandemic as it advanced toward their perimeter. Our garrison command teams brilliantly leveraged social media to conduct virtual town halls, sometimes daily, to keep their shut-in communities informed with factual information. I see this as something we sustain over the long haul.

COVID hit Italy after Korea, and the Army team alongside their host nation partners reacted quickly to build a playbook on how to respond which we quickly shared across the Army. This kept everyone and everything moving in the same direction.

Finally, because it’s a fight, we began to incorporate more and more battlefield tactics. For example, our commanders and their Child and Youth Services professionals developed secondary, or fallback battle positions so that if a child or teacher at one Child Development Center (CDC) became infected and needed to be closed, an empty, sterilized facility was waiting to open to sustain child care for our essential workers.

A&M: What are the implications for the SSA of all garrisons having experienced this pandemic?

LTG Gabram: The Strategic Support Area is where we build combat power, sustain operations from and project power into the support, close and deep areas the fight. Because of its important role, our enemies are sure to attack it. Our adversaries know and understand they can’t beat us in a straight-up fight, so they’ve have had their eyes on us in recent months to see how we’ve been able to protect our installations and our people while remaining ready and maintaining our ability to project power in the COVID-19 environment.

While I don’t think we’ll realize all the benefits of this experience for a while, I can already tell it has increased the integration of tenant units with one another and with their garrison team. We have increased the integration and level of communication with state and local governing bodies off the installation, and with our privatized housing partners. We all pulled together to defeat a common enemy, and our installation communities are now stronger because of shared experiences and a deeper appreciation for the roles each of us play in remaining ready. And, because we all play such important roles as individuals, it is important that we first Protect ourselves, so we can Protect the force, so the force can Protect the nation.
Far too often in the acquisition lifecycle of old, the Army relied on top-down leadership to drive innovation and deliver capabilities to Soldiers. This reactive mindset has led to obsolete tech reaching warfighters years after the cutting-edge curve, resulting in critical capability gaps against peer adversaries. Now, in the age of iterative and continual network modernization, collaboration from the bottom up is building product office partnerships. One such partnership between the Program Executive Office for Command, Control, Communications-Tactical (PEO C3T), PEO Intelligence, Electronic Warfare and Sensors (PEO IEW&S), and PEO Ground Combat Systems (PEO GCS) is tearing down turf wars and providing a next-generation communications capability across the service’s vehicle fleet.

Currently, more than 100,000 platforms in the Army are equipped with the Joint Battle Command-Platform (JBC-P). Since fielding began in 2015, JBC-P and its four components – the computer (and installation kits), software, transport hardware (antenna transceiver and encryption device) and the network it leverages – have been the cornerstone of the Joint Force’s command and control and situational awareness communications.

“JBC-P provides Blue Force Tracking capability as part of the holistic user experience that integrates system-of-system, complementary capabilities across the gamut of platform-based maneuver, protection and lethality capabilities, as well as enabling essential information exchanges as part of the command post environment,” said Christopher Green, Product Manager for JBC-P.

Each stakeholder with a piece of the JBC-P pie has now set its sights on development of the system’s follow-on capability – Mounted Mission Command, or MMC.

MMC has brought together PEO C3T, PEO IEW&S and PEO GCS to collapse various stovepiped capabilities from each portfolio onto MMC software. MMC provides all the movement and maneuver applications but also supports needs of the wider community and warfighting functions (WFF) – integrated common operational picture, intel, fires, medical, logistics, and third-party applications providing additional functionality through a converged software architecture and infrastructure. Convergence partners leverage MMC infrastructure and services to develop WFF capabilities without having to build a complete system from the ground up, resulting in streamlined integration, hardening, accreditation and critical capabilities delivered to the warfighter rapidly.

SYNCHING COMMAND AND CONTROL WITH MOBILITY

U.S. Army Program Executive Offices are teaming to field the next-generation of ground vehicle fleet-ready Mounted Mission Command (MMC) combat situational awareness comms capability to Brigade Combat Teams.

By Justin Eimers, Program Executive Office for Command, Control, Communications-Tactical (PEO C3T)
WARFIGHTER C2 SOLUTIONS

At REDCOM, we are intensely focused on meeting the communications needs of the modern warfighter. We enable mission-critical communications by building interoperable, resilient, flexible, and easy-to-use solutions.

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- United States Air Force Theater Deployable Communications
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The effort is taking the network expertise of Product Manager (PdM) JBC-P, the sensor know-how of Product Manager Mounted Position, Navigation and Timing (PdM Mounted PNT), and the platform proficiency of PdM Vehicle Protection Systems (VPS) with the intent of converging data feeds from currently separate systems onto a single, common user interface within MMC.

“The Army recognizes that there is not one single, silver bullet of a survivability technology that’s going to protect the service’s combat platforms against all threats but rather a series of layers of multiple capabilities to address multiple threats,” said Lt. Col. Daniel Ramos, Product Manager for Vehicle Protection Systems.

As a result, PdM VPS was stood up in 2018 with a focus of looking at vehicle protection capabilities for the enduring and future vehicle fleet, and supporting each with layered capabilities..

MMC’s layered capability delivery includes two critical improvements over its predecessor – the use of smart routing and sensor fusion to identity and pinpoint potential network threats, communications interruptions and areas of denied connectivity. Similar to the multi-path diversity afforded by Integrated Tactical Network capabilities, MMC’s encryption device will enable multiple different transport means and leverage both existing and emerging pathways to ensure users have multiple communications options when their network is limited or denied.

U.S. Soldiers with P Troop, 4th Squadron, 2nd Cavalry Regiment, along with Polish soldiers from the 6th Airborne Brigade, conduct a training exercise at the Drawsko Pomorskie Training Area in Poland. The exercise required the Soldiers to react to contact by firing from Stryker and Humvee tactical vehicles during a patrol. The U.S. Soldiers are in Poland as part of Operation Atlantic Resolve, an ongoing multinational partnership focused on combined training and security cooperation between NATO allies. Led by the mission command element of the 4th Infantry Division and in conjunction with European partner nations, Atlantic Resolve is intended to improve combined operational capability in a range of missions and ensure the continued peace and stability of Europe. (U.S. Army photo by Spc. Marcus Floyd, 7th Mobile Public Affairs Detachment)

The U.S. Army selected REDCOM Sigma® as the call control software for its Program Executive Office Command, Control, Communications-Tactical (PEO C3T) network modernization efforts. REDCOM Sigma will help the Army achieve unified network transport and enable multiple communication pathways in contested and congested environments for commanders.

REDCOM Sigma is a JITC-approved software-based call controller that increases the warfighter’s operational flexibility while reducing size, weight, and power (SWaP) requirements. Designed specifically for the tactical edge, Sigma’s feature set includes VoIP, Video, Chat, Conferencing, and Unified Messaging.

The Army selected REDCOM Sigma for these reasons:

- Reduced Hardware/Software Footprint: Sigma can deliver call control, conferencing, transcoding, and more all within a single virtual machine with lower system requirements than existing solutions. The Army can reduce the amount of hardware it has to field, support, and transport, yielding a major cost savings per deployment.
- Intuitive user interface: Sigma’s web-based interface reduces training ramp-up time, without the need to learn a command-line interface. This helps cut the U.S. Army’s reliance on industry field service representatives and enables rapid deployment.
- Resilient to hard shut-downs and rapid boot time: Sigma is ideally suited for tactical deployments and is directly aligned with the U.S. Army’s strategy to become more agile.
- Interoperability with legacy devices: With a standards-based approach, REDCOM Sigma works with the existing deployed base of handsets. This results in cost savings for the Army by avoiding the “rip and replace” of tens of thousands of handsets.
- Simple and scalable licensing: REDCOM’s simple licensing model reduces the complexity of pricing, ordering, integrating, and deploying Sigma, which in turn reduces operational costs. This enables Sigma to easily scale to meet requirements up to the Division and Corps, and down to the Company and below.

More info: redcom.com
PARTNERING FOR CAPABILITIES CONVERGENCE

Software is not only the backbone of MMC capabilities but also the connecting link between each stakeholder involved in its development. From early on, each product office placed increased emphasis on providing the right messages in the right formats through an iterative process. Within the last month, acquisition professionals and subject matter experts have stood alongside Soldiers from the 3rd Armored Cavalry Regiment to test MMC prototypes at White Sands Missile Range (WSMR) and refine functionality based on direct user feedback. This collaboration and Developmental Operations (DevOps) environment is providing a more in-depth graphical user interface so Soldiers can understand what is going on in their PNT environment. Through DevOps at WSMR, PM PNT has been able to show more in-depth PNT data to users through MMC. Future PNT enhancements may include a “heat map” within MMC to pull in data from various sensors and physically show where users can expect to be jammed.

Despite a lack of mission overlap between each PEO involved, MMC collaboration capitalizes on several other areas of commonality. This convergence can save the Army money and save Soldiers space inside their vehicles. Additional convergence opportunities are being pursued within the U.S. Army Combat Capabilities Development Command’s C5ISR Center, leaning on existing partnerships between acquisition and science and technology offices. “Ultimately, Soldiers aren’t concerned about the name of a vendor developing a piece of equipment or the product office delivering it,” said Lt. Col. Alexander Rasmussen, Product Manager for Mounted PNT. “They just want it to work. They want to be able to execute their mission with a capability that keeps them one step ahead of their adversaries.”

MEETING FUTURE BATTLEFIELD CHALLENGES

MMC, its ancillary devices and the network it leverages must enable Soldiers to shoot, move and communicate, and bring fires on the enemy. Collaboration within the Army’s modernization enterprise is making that a reality by focusing on what makes sense for the service and not for individual programs. That foundation has laid the groundwork for MMC to enable commanders and Soldiers on the battlefield and for future capabilities in tomorrow’s fight.

MMC will see additional DevOps throughout FY21 as part of the program’s incremental Initial Operational Test & Evaluation (IOT&E) test strategy, and a Limited Deployment Decision (LDD) is slated for 3QFY21.

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RESEARCH IS RECONNAISSANCE

The role of scientific research in U.S. Army modernization is as important as the role of reconnaissance in combat operations.

By Dr. Bull Holland, Senior Engineer, Bennett Aerospace and Adjunct Associate Professor, North Carolina State University

Blind. The Commander who employs reconnaissance resources to attack targets or defend a position has left the unit blind. Blind to counterattack, blind to opportunities for a breakthrough, blind in every manner that matters for future operations. The same is true for scientific research resources. Scientific research is as different from technology development as is a zone reconnaissance from a movement to contact. And so, it is also true that the leader who employs scientific research assets for the development of near-term technologies is leaving the unit blind towards future opportunities and inviting technological surprise. Scientific research is akin to reconnaissance in that they are both planned activities conducted by highly skilled professionals who are focused on turning the unknown into the known. It is critical at this point in our history that not just our senior leaders, but all of the men and women who are the Army, understand what scientific research means for our future...lest we leave ourselves blind.

REGAINING A PROPER PERSPECTIVE

Army leaders at all levels consistently call for research resources to be applied to developing technologies because the consequences of those decisions are ill defined. The pressure to apply resources to make tools to perform tasks as opposed to search for new fundamental knowledge is not unique to the Army, rather it is as old as the Mechanical Age. When Galileo Galilei was paid by wealthy patrons to unlock the mysteries of the stars, his labor was of no use or harm to an agrarian society; the alternative was that he be one more hand in a field and so the public took no interest in the labor scientists. But when the power of the steam engine and the miracle of electricity yielded technologies that changed entire populations virtually overnight the public very much took an interest in the labor of scientists. The call was for resources to be diverted from the esoteric 'search for knowledge' to developing the technologies that would make a difference in the lives of the people now. So, when Army leaders ask why resources are spent on science for tomorrow instead of on developing technologies they can take to war today, they are asking the same valid question that has been asked the world over for a very long time. The answer to this question is that research is reconnaissance and without both we are blind.

The military history of battles whose outcomes depended upon investing combat resources in reconnaissance is well understood by historians and military leaders the world over. It is a rare National
Training Center rotation where a leader does not relearn these lessons through defeat by the 11th Armored Calvary Regiment. Conversely, the military history of wars won or lost based on choices nations made between investing in scientific research for a possible future over technology development for a likely today is less well understood. The Germans discovered the science behind RADAR 1888 and in 1904 the German Navy was a presented a functioning system but they could not see the potential and did not pursue it until well after World War I. Less than 30 years later RADAR would be the deciding factor in protecting England from German bombing raids and American microwave RADAR would free the Atlantic of the devastation wrought by German U-boats. Similarly, the Germans and Japanese had the same knowledge of the possibility of a nuclear chain reaction at the same time as did the United States. It was the decades of American investment in scientific knowledge/research capacity prior to WWII that led to the U.S. winning the race to the atomic bomb. The U.S. military was so effective at operationalizing scientific research discoveries that President Roosevelt asked for the process to be replicated for all civilian industries to better the lives of all Americans. In the years between now and then, that vision and leadership has been lost to the degree that military leaders now look at civilian industries for models of how to achieve a scientific breakthrough.

SCHEDULING A BREAKTHROUGH

It is no more possible to schedule a scientific breakthrough than it is to schedule when reconnaissance assets will discover the opposing force. An operational plan that will only prevail if the enemy is ‘discovered’ at a pre-defined time, date and location is a bad plan; no Commander would accept it. Yet our Army all too often insists that scientists justify just this sort of folly when we put deliveries of technologies from scientific research on product development roadmaps. This disconnect is a function of using the wrong metric to measure the value of scientific research. Like reconnaissance, research produces the knowledge to inform decisions, not the desired outcomes of those decisions themselves. Imagine a Commander being asked to justify each reconnaissance target in terms of ‘Return on Investment’ (ROI). For that matter imagine having to justify the existence of a Scout Platoon itself based on its ROI; the notion is absurd. Reconnaissance assets are information gathering assets. Reconnaissance targets are established based on information requirements that are derived from the Commanders Critical Information Requirements (CCIR), i.e. the information the Commander needs to make decisions about how to achieve the mission. A Commander decides to assault an objective only after that Commander determines that there is enough information to begin the assault. The decision to begin developing a new technology is analogous to the decision to assault the objective; research provides the information for the former and reconnaissance the information for the latter. If we recognize that research is akin to reconnaissance in this way we will redirect our research assets away from technology development and back to the knowledge discovery activities we dominated during World War II.

RESEARCH DEFINES POSSIBILITY

Our Army is fortunate to have a leader of its newest four-star command who asks ‘what could be?’ Unfortunately, we have about 70 years of bad habits to overcome because we are trying to apply acquisition models from the 2nd Industrial revolution in a 4th Industrial revolution era. Old models of linear progressions along lines of Budget Activities (e.g. 6.1, 6.2, 6.3, etc...) and Technology Readiness Levels (TRLs) fail so consistently that we invented a myth called the ‘Valley of Death’ to explain them away. A new, non-linear model of collaboration where the Army Concept Framework (ACF) inspires Army scientific research and known science is the basis for the ACF is rapidly taking hold. This paradigm shift can only flourish if, like reconnaissance assets, research resources are applied for their intended purpose of discovery instead of being diverted to technology development. Our Army has brilliant, award winning scientists spread across the formation. Our scientists created research programs which resulted in two dozen Nobel Prize winners. That cadre of brilliant scientists is still with us and still looking into the uncharted unknown and asking ‘what could be’. When discussing the future, General David Perkins was partly right when he describes the future as unknown and unknowable. The technologies of the future cannot be known with certainty, but what is certain is that those technologies will be based on the science of today. The science of today most certainly can be known...if we conduct the proper reconnaissance.

AUTHOR’S NOTE

Bull Holland is a retired Army Officer with a PhD in Engineering Management from the Missouri University of Science and Technology. He is a senior engineer at Bennett Aerospace supporting the Army Research Laboratory and an adjunct Associate Professor at North Carolina State University where he teaches Product Innovation and Hacking for Defense. tjhollan@ncsu.edu.
MODERNIZATION IN SUPPORT OF USMC FORCE DESIGN

Colonel Wilfred Rivera is currently serving as the Commander, Marine Depot Maintenance Command (MDMC) in Albany, GA. A Joint Qualified Officer and meritoriously augmented career Logistician who has commanded at every level. As the MDMC Commander, he leads over 1,700 civilian Marines and contractors in the Force Design changes necessary and to be executed at the speed of relevance to outperform a pacing threat in 2030 and beyond. Enabling freedom of action, extending operational reach, prolonging endurance, and increasing the lethality of the Fleet Marine Force are in the forefront of our day to day operations while maintaining cost, schedule, and quality year after year.

Armor & Mobility had the opportunity to speak with Col. Wilfred Rivera, Commander, U.S. Marine Depot Maintenance Command, regarding USMC efforts to maintain high-level depot operations in support of U.S. Naval readiness during a global pandemic.

A&M: From a USMC depot maintenance perspective, tell A&M readers about any adjustments MDMC has/continues to implement during the current pandemic in maintaining personnel safety and mission fluidity.

Col. Rivera: Marines, both civilian and uniform, are always in the fight. In the active component, the individual Marine is the most important resource. We assign this same value to our more than 1,700 mission essential civilian Marines strategically located around the globe who provide depot level support to the FMF. In today’s COVID-19 environment, it is no different. Inherently, everything we do is dangerous, but specifically as a team, our priority is to keep COVID-19 outside of our Depot. We continue to take offensive actions against COVID-19 by following and practicing CDC and DoN guidance. From the beginning of the outbreak, our team-all 1,700 of us-have maintained a safe and healthful working environment while holding fast to our mission to provide timely and dependable Depot support to the FMF to directly contribute to the lethality of our Corps. Thanks to the accountability of our workforce-the individual employees, small unit leaders, management, and our higher headquarters staff-we have been able to maintain our mission and keep our Marines in the fight.

A&M: Tell us about MDMC mission evolution to present and your role as MDMC Commander.

Col. Rivera: The best way that I can describe my role as the MDMC commander is to explain how I view and associate it with the “Innovator’s Dilemma.” MDMC is at a fork in the road where we are challenging the norms and embracing innovation while seeking increased agility, pivot speed, and by taking bold moves that propel us toward the future. The National Defense Strategy and Force Design have served as the catalysts for this change. MDMC brings needed increased readiness and agility to the Corps by setting our schedule two years out which ensures flexibility and allowance for adjustment to the needs of the FMF. The critical action that we are addressing now is our posture to support the future workload. In the past, our core competency was heavy iron. As we look forward to 2030 and beyond, the four critical workloads we see are: (1) Command, Control, Communications, Computers and Intelligence (C4I) Systems; (2) Fires; (3) Autonomous Systems; and (4) USMC specific systems. These new workloads will drive our three major efforts going forward: (1) workforce development; (2) operational footprint; and (3) Depot modernization.

A&M: As a critical USMC element for Fleet Marine Force support, speak to some key ground combat and combat support initiatives.

Col. Rivera: MDMC is exploring ways in which we can more directly impact the operational readiness of Marine Corps equipment. For example, we are in discussions with the 4th Marine Aircraft Wing (4th MAW) to establish a Proof of Principle for our Deployable Depot Capability. 4th MAW will provide aircraft (e.g., MV-22 or C-130), training sorties, and the identification of units across the United States in which MDMC can provide a wide range of capabilities to increase readiness (e.g., subject matter experts, specialized equipment, calibrations, additive manufacturing, etc.). The new Deployable Depot Capability will be task organized and loadable in our aircraft inventory; virtual; and include the small boats of the future. We are developing a Naval (USN & USMC) Depot Strategy that allows us to repair Navy equipment while leveraging the existing naval supply routes. We are on track to obtain ISO 45001:2018, UL 3400, and AS9100 certifications, which will leverage our capabilities globally and increase access as needed.

A&M: In terms of development of a more distributed and Expeditionary Advanced Base Operations (EABO) environment, how do you see MDMC posturing a forward deployed depot capability to the Fleet?

Col. Rivera: To be relevant in 2030 and beyond we have to bring depot level capabilities as far forward as we can to extend operational reach, prolong endurance, and enable freedom of action for the Fleet Marine Force and our Navy shipmates. The paradigm shift with this approach...
is that technology like 5G will allow us to have a virtual depot level capability that directly increases readiness. We are looking at ways of co-locating portions of our depot capabilities with the Marine Expeditionary Forces, and most importantly, have a depot forward capability (not necessarily physical) inside the Weapons Engagement Zone (WEZ). For example, we are examining Force Design implications like the divestment of tanks. Could the old tank maintenance bays be utilized to solve the current Fleet Marine Force maintenance requirements? Could co-locating a depot capability that reduces transportation costs as well as increases the operational availability of the equipment better meet the need? How do we leverage the Defense Policy Review Initiative to increase operational availability inside the WEZ?

A&M: Talk to some MDMC modernization efforts to enable more efficient additive/subtractive manufacturing, augmented reality and simulation, as well as new opportunities in areas such as autonomous robotics.

Col. Rivera: We like to bin our modernization efforts into the fourth industrial revolution, or Industry 4.0, under a Naval construct across the warfighting domains. Industry 4.0 includes:

- Industrial Internet of Things; Big Data and Analytics; Cloud Computing; Advanced Robotics; Additive Manufacturing;
- Digital Twins; and Augmented and Virtual Reality. For example, we are in partnership with Marine Corps Logistics Base Albany (MCLB-A) to utilize Big Data and Analytics with sensors in some of our buildings (think conditions-based maintenance) to anticipate maintenance needs, reduce downtime, and increase productivity. We are also working with industry as well as MCLB-A to develop an Augmented and Virtual Reality under their 5G proof of principle with the end-state of having depot subject matter experts linked with Marines inside the WEZ to help them troubleshoot and/or repair and identify required parts. In addition, MDMC will soon be conducting a ribbon cutting ceremony for the Marine Corps Additive Manufacturing Center of Excellence (UL 3400 certified).

A&M: From a reverse engineering perspective, what are some focus areas that MDMC is leveraging to implement lessons learned in development and faster acquisition of more targeted future FMF capabilities.

Col. Rivera: In the long term, we have to work closely with our higher headquarters and Marine Corps Systems Command in order to become a sub to the prime for new Marine Corps acquisitions in C4I, Fires, Autonomous Systems, and USMC specific systems. We now have to be a part of the acquisition cycle up front in order to create synergy and “supporting fires” between the Defense Industrial Base and the Organic Industrial Base. Our ability to partner with industry early in the acquisition cycle helps to mitigate the gaps created when we hastily transition from one to the other and to avoid unfavorable milestone decisions. In the interim, we are utilizing our manufacturing capabilities to build a contingency catalog of manufactured parts and repair processes that will directly impact operational readiness and equipment availability. This catalog is intended to bridge the gap between the “gray zone” and kinetic operations against a pacing threat until industry and the Joint Logistics Enterprise normalizes their support to those operations.

A&M: Feel free to speak to other goals/challenges moving forward.

Col. Rivera: The biggest challenge is speed. 2030 will be here before we know it and we cannot afford to make incremental changes; they need to be monumental in scope and high impact to the FMF. For example, when you play the game of “Go,” the proverb “Lose 100 Games as Quickly as Possible” holds much truth. You must be willing to sacrifice in the beginning to win in the end--much like our investment in our Additive Manufacturing Center of Excellence.

The upfront cost to establish this capability is warranted and allows us to reverse engineer as well as print complex geometrical parts and geometry otherwise difficult to find in the traditional supply chain. However, in order to win in the end and truly increase FMF readiness, we need supported units and key stakeholders to register their requirement and be willing to learn and adapt today. If we have idle printers we may not be optimizing readiness. Another challenge is in aligning source of repair decisions with the NDS and with Marine Corps Force Design. We must ask ourselves if the decisions made in the legacy operating environment will produce the results we need in tomorrow’s environment. For example, currently, MDMC does not have the authority to repair the High Mobility Artillery Rocket System (HIMARS). Our workforce who just recently earned the Mason Award for a Fires platform, the highest award for depot-level maintenance in all of the Department of Defense, is ready and postured to take on the Fires workload that will increase the lethality of USMC. In my opinion, in 2030, we would have upgraded from “every Marine is a Riflemen” to “every Marine is a Firesmen.” Our biggest goal is to leverage the Working Capital Fund (WCF) in order to deliver more readiness than we are funded for. The WCF brings a “business” mindset inside our Corps, and much like a corporation, brings a lot of extra tools to that business. Bottom line: we have to be a readiness multiplier for our Corps and further modernize to be relevant in 2030.

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SUSTAINING SUPPLY CHAIN PRECISION AMIDST PANDEMIC

The U.S. Naval Supply Systems Command Weapon Systems Support (NAVSUP WSS) is balancing supply chain and audit readiness despite enhanced DoD safety measures during the COVID-19 outbreak.

By Brian Jones, NAVSUP Weapon Systems Support

At the U.S. Navy’s single Program Support Inventory Control Point, the 2,500 employees of U.S. Naval Systems Command Weapon Systems Support (NAVSUP WSS) manage an inventory worth more than $36 billion in support of the weapon systems that keep Naval forces mission ready.

May marked a change in leadership at NAVSUP WSS as Rear Adm. Doug Noble took the helm from Rear Adm. Duke Heinz.

“NAVSUP WSS’ accomplishments over the past several years have been amazing,” said Noble. “My goal is to build upon this legacy of success – sustaining the fantastic work already begun while exploring opportunities to take our culture of excellence and our performance to new levels.”

ENSURING INSPECTION-READY PROCESSES 24-7

What hasn’t changed is NAVSUP WSS’ focus on supporting the warfighter through effective end-to-end supply chain management and auditability.

Auditing is a necessary tool for evaluating an organization’s fiscal health. It is especially critical for NAVSUP WSS, where audits provide opportunities to ensure policies and practices provide proper accountability of one of the largest supply chains in the world managing more than 375,000 line items and executing more than 40,000 contract actions a year.

In 2018, NAVSUP WSS established an Inventory Operations Center while also implementing multiple audit-related initiatives. Among these initiatives was an oversight testing program that inspected more than 100 Navy ERP “plants” or material receiving, issuing and storing locations. In addition, the command developed, trained and implemented improved internal controls and expanded the Fleet Logistics Centers’ role in material accountability to increase the capacity and capability of oversight testing and audit support.

“Audit and NAVSUP WSS cannot stand independently; they are one in the same,” said Lynn Kohl, NAVSUP WSS vice commander. “Everything we do with inventory management, inventory auditability and accountability should be ingrained in every process we have.”

In addition to being ingrained in every process, audit should be rooted in every member of the NAVSUP WSS team according to Noble.

“Audit isn’t some obscure bookkeeping that only the folks in the comptroller shop worry about. It should be something everyone worries about, because we all have a part to play,” said Noble. “We’re responsible for the Navy Working Capital Fund and wholesale inventory that supports our operational partners, supports the warfighters and provides flight line readiness. Audit is the way of making sure we have good accountability and controls over our $36 billion inventory.”
LOGISTICS AS A WEAPON

Noble views NAVSUP WSS as a weapon system delivering a payload of logistics readiness. That weapon system is powered by the professionals who accomplish the mission day in and day out.

“Professionals welcome scrutiny, and audit is a tremendous opportunity for an independent assessment,” according to Noble. “As a learning organization, we should analyze the findings from audit and recognize them as opportunities to improve.”

The Inventory Operations Center (IOC) and Integrated Supply Chain Control Tower are two platforms NAVSUP WSS utilizes to prepare for audit and ensure the entire supply chain is synchronized.

The NAVSUP WSS IOC is the brain and central nervous system to executing an audit, according to Kohl.

“We’ve put a lot of effort into standing up a robust IOC with the intent of monitoring our controls and executing an audit, as well as, training on any shortcomings that are exposed,” said Kohl.

The IOC has proven invaluable when sustaining a large supply chain.

“NAVSUP manages an inventory that’s positioned worldwide. It’s not stationary inventory. A certain amount of inventory is ready for use, a certain amount is in repair, and a certain amount is in storage,” said Kohl.

“The infrastructure that NAVSUP manages is integral to sustainment of all platforms, equipment and systems.”

Ensuring all stakeholders have the same information and are working from the same data is essential to understanding the efficacy of the entire supply chain. NAVSUP WSS, in coordination with NAVAIR, is spinning up the Integrated Supply Chain Control Tower to address this challenge.

“One of the challenges historically is there have been different databases, different systems in different commands. Everyone has different data and perspectives based on that data. That can cause confusion,” said Noble.

The control tower will contain four elements of data evaluating the health of the supply chain at the depot level, on both the organic and vendor sides, as well as, the health of intermediate- and organizational-level repairs, according to Kohl.

“That’s how we are going to integrate everybody’s view of the performance of the supply chain, even though NAVSUP proper is not responsible for the execution of certain parts of the chain. We can still coordinate and facilitate changes to other entities so we can optimize supply chain performance,” said Kohl.

“It’s opening up possibilities to discover opportunities that we may not have caught before, because our processes weren’t agile or nimble enough to get after it,” added Noble. “Now we take advantage of what the control tower offers us to get a better handle on where there are opportunities to improve.”

SUPPLY CHAIN HEALTH DURING A HEALTH CRISIS

While audit is critical to assessing the effectiveness of NAVSUP WSS’ policies and procedures, it is just as important to understand the health of the command’s suppliers and vendors, the entire supply chain. Gauging the wellbeing of suppliers has been crucial during the COVID-19 pandemic.

NAVSUP WSS’ Strategic Supplier Management team leveraged their existing relationships with the command’s top suppliers sending surveys to evaluate their ability to meet fleet readiness requirements with the challenges of COVID and ensure the safety and continued good health of their employees.

“Early on, we were focused on whether or not they had the necessary Personal Protective Equipment. Did they have the artifacts to support that their employees were part of the Defense Industrial Base? That became the cornerstone of those early surveys,” said Karen Fenstermacher, NAVSUP executive for strategic initiatives.

A key aspect of the surveys was creating a feedback loop so NAVSUP WSS could step in and take action on behalf of the suppliers that were experiencing difficulties.

“If it was PPE-related for example, we worked back through the president’s White House Coronavirus Task Force. There were members of the Defense Logistics Agency on that task force, so they helped align suppliers with contracts to access PPE more readily,” said Fenstermacher.

As suppliers began to adjust and achieve the recommendations of the Centers for Disease Control guidelines, the Strategic Supplier Management team shifted the focus of the surveys to the suppliers’ financial health.

“Our connection points back with the Office of the Secretary of Defense and Research, Development and Acquisition became helpful in this regard, because at that time the task force had worked to secure stimulus funding through the CARES Act,” said Fenstermacher. “We provided a number of recommendations on companies that needed help. Several were approved for CARES Act funding.”

Today, more than five months since the pandemic took hold, NAVSUP WSS continues to survey suppliers focused now on what Fenstermacher calls ‘downstream aftershock,’ understanding the effects of COVID-19 on the supplier base.

“What we’re digging into, and it’s not an exact science, is looking at the maritime supplier base and trying to determine if two, three years down the road, given what we know today, who may not be around,” said Fenstermacher. “We are kind of building the calculus as we go.”

This approach to assessing supplier health developed during the pandemic has built the framework to responding to future crises.

“What we learned from the COVID crisis is everybody is important, and every company makes a contribution,” said Fenstermacher. “If another crisis were to come around, we have a solid platform we can spool up quickly.”

LOOKING AHEAD

Despite the challenges of the COVID-19 pandemic, NAVSUP WSS continues to be a model of supply chain excellence and audit readiness, a fact acknowledged by the command’s new leader.

“I walked into an organization that had made that transition look easy. It wasn’t easy, and it took a lot of hard work. It’s impressive and something the team should be proud of,” said Noble. “Back in March when this started, who would’ve thought we’d still be managing our way through this? You won’t know all the answers as you start down the path, but that’s OK as long as you’ve got good teamwork, good communication and people evaluating and adjusting as we go.”

NAVSUP WSS is one of 11 commands under Commander, NAVSUP. Headquartered in Mechanicsburg, Pennsylvania, and employing a diverse, worldwide workforce of more than 22,500 military and civilian personnel, NAVSUP’s mission is to provide supplies, services, and quality-of-life support to the Navy and joint warfighter. Learn more at www.navsup.navy.mil, www.facebook.com/navsupwss.
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### CALENDAR OF EVENTS

**OCTOBER 5 – 8**
- Xponential
  - Virtual
  - Xponential.org

**OCTOBER 7 – 8**
- Joint Civil & DoD CBRN Symposium
  - Alexandria, VA
  - Jointcbrn.dsigroup.org

**OCTOBER 12 – 14**
- AUSA Annual Meeting
  - Virtual
  - Meetings.ausa.org

**OCTOBER 19 – 20**
- Milcom Contracting Summit
  - In Person and Virtual
  - Tysons Corner, VA
  - Defenseleadershipforum.org

**OCTOBER 27 – 28**
- Insider Threat Symposium
  - Alexandria, VA
  - Insiderthreat.dsigroup.org

**OCTOBER 28 – 30**
- Hypersonic Weapons
  - Virtual
  - lida.org

**NOVEMBER 4 – 5**
- CDM Symposium
  - Alexandria, VA
  - Identitymanagement.dsigroup.org

**NOVEMBER 18 – 19**
- EOD/IED & Countermine Symposium
  - Alexandria, VA
  - Counterminedsigroup.org

**NOVEMBER 19 – 20**
- Warfighter Systems Summit
  - Alexandria, VA
  - Futurewarfighter.dsigroup.org

**DECEMBER 2 – 3**
- Space Resiliency Summit
  - Alexandria, VA
  - Space.dsigroup.org

**DECEMBER 6 – 10**
- AMSUS
  - Virtual
  - Amsus.org

**DECEMBER 11 – 12**
- SOF and Worldwide Operations
  - Tampa, FL
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