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HIP-POCKET GUIDE

ARMY SUSTAINMENT

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**Contested
Logistics
in LSCO**



CONTESTED SUSTAINMENT

IN LARGE-SCALE COMBAT OPERATIONS

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ON THE COVER

Soldiers assigned to 375th Combat Sustainment Support Battalion, 1st Stryker Brigade Combat Team, 2nd Infantry Division, tactically maneuver forward during Decisive Action Rotation 20-05 at the National Training Center in Fort Irwin, California, March 16, 2020. (Photo by Cpl. Antoine Rolle)

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Future Themes

Summer 24: SUSTAINMENT IN INDO-PACOM, MARITIME ENVIRONMENT | Due: April 15, 2024
Fall 24: TOPIC COMING SOON | Due: July 15, 2024
Winter 25: TOPIC COMING SOON | Due: Oct. 15, 2024
Spring 25: TOPIC COMING SOON | Due: Jan. 15, 2024



Prepare to be Contested, Period



■ By Gen. Charles R. Hamilton

In an era marked by rapidly evolving technological advancements and geopolitical complexities, combat operations are no longer confined to conventional battlefields. The ability to maintain the flow of resources, supplies, and

equipment from the joint strategic support area to the tactical point of contact is a critical determinant of victory in modern warfare and large-scale combat operations (LSCO), and we should expect this flow to be targeted in all domains. Ongoing operations in Ukraine and studies of our adversaries clearly demonstrate this, which is why we must be prepared to provide sustainment in a contested environment.

Sustainment is about warfighting, and it must continue giving our adversaries pause. Our sustainment competence, capability, and superiority must be known to those who would consider challenging us and serve as a deterrent. Across the Army sustainment enterprise (ASE), we recognize this fundamental reality and adapt our approach to future operations. We

are channeling observations and lessons learned from key exercises and operations into action.

The critical necessity for the now-operational Contested Logistics Cross-Functional Team (CFT) was underscored during last year's Project Convergence. The Contested Logistics CFT is now hard at work on next-generation sustainment systems focused on autonomous distribution, predictive maintenance, and reducing the logistics tail. These new capabilities must provide the right data to make informed decisions at echelon. We cannot take a solely defensive posture, either. We must consider offensive sustainment capabilities that leverage deception to ensure we prevail in the most challenging and contested environments. Picture autonomous resupply capabilities moving along supply routes. Rather

than making easy targets for our enemies, imagine if some were offensive and could strike back. It's about making our adversaries think twice before challenging us and making them pay when they attempt to contest us.

Talisman Sabre 23 provided the Contested Logistics CFT and the entire ASE the opportunity to think through, discuss, and learn how we execute contested logistics in the Indo-Pacific theater. From that exercise, we are working with the Army to refine watercraft strategy, strengthen Army pre-positioned stocks in the region, sharpen our posture, and ultimately better prepare the theater.

Our approach represents a holistic strategy that encompasses adaptive logistics, enhanced cybersecurity, pre-positioned stocks, multimodal transportation, and joint operations. These components work in concert to ensure our ability to sustain the joint force in the face of adversaries who seek to disrupt supply lines and logistics operations.

We must also recognize the importance of joint operations and interagency collaboration to better integrate logistics and sustainment when contested. In LSCO, success will depend on the coordination of efforts between all branches of the military, various government agencies, and our partners and allies. It will require the seamless integration of land, air, sea, space, and cyber capabilities to achieve common objectives. We will not

fight the next war alone, and similarly, we will not sustain our forces — or our allies and partners — alone.

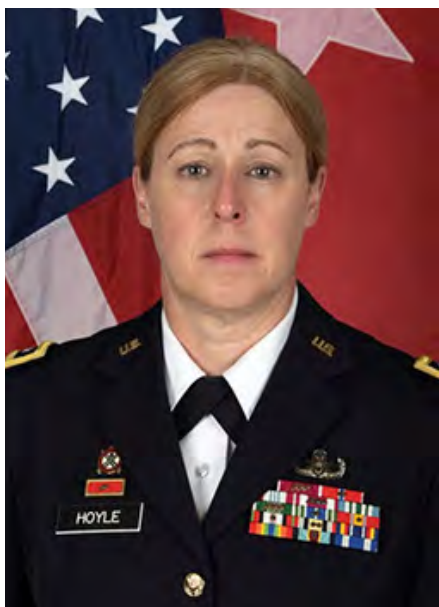
Army Materiel Command, and by association, the ASE, has been charged by our 41st Chief of Staff of the Army to deliver ready combat formations. This requires bold ideas, swift execution, and focused energy to sustain multidomain operations against near-peer competitors in a contested environment from the foxhole to the joint strategic support area.

Gen. Charles R. Hamilton currently serves as the commanding general of Army Materiel Command. In February 1988, he graduated from Officer Candidate School as a Distinguished Military Graduate and was commissioned as a second lieutenant in the Quartermaster Corps. He earned a master's degree in public administration from Central Michigan University and a master's degree in military studies from Marine Corps University, Virginia. He also graduated from a Senior Service College Fellowship — Secretary of Defense Corporate Fellows Program.

We must consider offensive sustainment capabilities that leverage deception to ensure we prevail in the most challenging and contested environments.

Preparing to Win:

Ensuring our Army's Success in a Contested Environment



■ By Lt. Gen. Heidi J. Hoyle

In his address at the Association of the United States Army 2023 Annual Meeting, Gen. Randy George, the 41st Chief of Staff of the Army, posited, “The world and warfare are changing rapidly. We will stay ahead of our adversaries.” In short, the character of war is changing, which drives the Army to

embrace new ways (doctrine, tactics, techniques, and procedures) as it transforms to meet future needs. New concepts for warfighting will drive future changes. These will affect all our Army warfighting functions (WfFs) and especially revolutionize the sustainment WfF. One often discussed concept when it comes to future warfare is contested logistics. As Army sustainers, we must ask ourselves what it is and how it will shape sustainment operations.

The U.S. has enjoyed nearly 80 years of unimpeded logistics dominance, but the world is changing. One only needs to read the news to see how our adversaries aim to contest our sustainment prowess in multiple domains and understand that it will be critical to the next fight. And that is why we must be prepared to win in this emerging environment. We must continue applying the age-old principles of Army sustainment as set out in Field Manual (FM) 4-0, Sustainment Operations, which will

ensure our success in every domain in large-scale combat operations (LSCO).

Integration

Traditionally, we have considered integration to ensure Army sustainment operations are synchronized with Army operations. While that remains true, we must also consider integration with our joint partners and with the military of other nations as an essential task in future warfare. Winston Churchill famously quipped, “There is only one thing worse than fighting with allies, and that is fighting without them.” He only meant this half in jest. World War II, the last true LSCO environment the U.S. faced, was successful because of the integration of allied partners. Future warfare will be no different. We must continue working closely with our joint and allied partners in routine exercises to ensure we are prepared to fight together during a contingency.

Agile sustainment is crucial for providing freedom of maneuver to the joint force. This encompasses all aspects of sustainment: logistics, financial management, personnel services, and health services support. The ongoing conflict in Ukraine is a prime example of how agile sustainment is vital for sustaining operations amid contested supply lines.

Anticipation

Precision sustainment is a critical aspect of forward logistics that emphasizes maintaining adequate supplies and equipment at the right place, time, and quantity to sustain military operations. This approach involves a deep understanding of the operational environment, including terrain, weather, and enemy movements, and a deep understanding of the operational variables covered in Army Doctrine Publication 3-0, Operations. By anticipating potential challenges and threats, we can take proactive measures to ensure supplies and equipment are readily available when needed.

For instance, precision sustainment may involve pre-positioning critical supplies and equipment in strategic locations, such as forward operating bases (FOBs) or staging areas, to ensure its accessibility. It may also involve using advanced logistics technologies such as predictive analytics and automated inventory management systems to optimize supply chains and reduce the risk of shortages or delays. By adopting a precision sustainment approach and

conducting thorough threat analysis and intelligence gathering, we can generate resilience in the face of contested logistics and maintain a decisive operational advantage over our adversaries.

Responsiveness

In contested environments, responding quickly to changing requirements is crucial. Resilient and agile logistics are necessary for timely support at the right place and time. This is where predictive logistics emerges as a potential game changer. Using data to anticipate equipment needs and optimize the supply chain stands to disrupt our adversaries’ efforts to contest our sustainment operations.

Predictive logistics is essential for modernizing the Army’s logistics management as it helps support maintenance requirements, minimize downtime, and increase overall equipment readiness. It is crucial we ensure data security and take measures such as encryption, access controls, regular security audits, and personnel training. It is vital we align these efforts with the emerging technical capabilities coming out of industry. Prioritizing predictive logistics systems and implementing security protocols can help the Army safeguard sensitive information and maintain a robust supply chain that meets the evolving requirements of a contested environment.

Simplicity

In today’s complex and contested operational environments, advanced

decision-making processes are crucial for military leaders to ensure mission success. With the rise of artificial intelligence (AI) and machine learning (ML) technologies, leaders can now leverage these advanced tools to simplify and streamline logistics processes. These technologies can reduce complexity in sustainment processes and enable standardized procedures, thereby contributing to efficiency in the use of resources and providing practical support to forces operating in challenging environments. By leveraging the power of AI and ML, sustainment leaders can make more informed decisions, optimize supply chains, and enhance situational awareness, which will lead to mission success. Moreover, AI and ML will not only enable us to make more simple decisions but also allow us to make complex decisions faster than ever before.

Economy

During the war on terrorism, the Army enjoyed unprecedented logistics capability. The FOB concept enabled sustainers to stockpile nearly infinite amounts of supplies to ensure the maneuver force’s success. However, in a contested environment, we cannot afford the luxury of larger FOBs with large equipment stores. While doctrinally, economy speaks of contracted support, we may not be able to rely as heavily on contractors in a contested environment. We need to clearly understand what contract and host nation support operations look like in this new environment and plan accordingly.

Survivability

The recent RAND Corporation study, “Russian Logistics and Sustainment Failures in the Ukraine Conflict,” highlighted how increased dependency by the Russian army on extended ground transportation led to heightened vulnerability to interdiction, particularly with Ukraine’s acquisition of advanced missile systems capable of targeting distant positions. This is not an anomaly, and we shouldn’t ignore what we witnessed. We must pursue advanced technologies to reduce sustainment demands and improve supply distribution methods. Integrating autonomous vehicles will reduce manpower on the battlefield, and incorporating hybrid technology into combat platforms will reduce supply demands. While these cutting-edge technologies promise risk reduction to the force, widespread implementation across the Army is a process that will span several years.

Starting now, it’s crucial to incorporate tactical concepts like displace, disperse, and defend when training for survivability in a contested environment. Displacement involves deliberately shifting forces from their current position to another location, aiming to avoid enemy detection and evade threats. Dispersal distributes forces across a broader area, lessening vulnerability to concentrated attacks and enhancing resilience against enemy actions by complicating an adversary’s efforts to target or neutralize logistics capabilities. Defending protects a specific

position and capability from enemy threats or attacks. These tactics are frequently employed together, forming a comprehensive tactical approach. This unified strategy increases operational flexibility, enabling military commanders to adapt to evolving situations.

Continuity

Continuity is likely the most important principle we should consider in a contested logistics environment. FM 4-0 defines it as “the uninterrupted provision of sustainment across all levels of war.” Our focus as sustainers is to understand and link sustainment operations not only from the factory to the foxhole but also from the foxhole to the factory. The tele-maintenance effort led by U.S. Army Europe and Africa in support of the Armed Forces of Ukraine is but one example of how we can leverage technology to close the gap between the industrial base and the tactical level.

Moreover, we should clearly understand that in the contemporary operating environment, it is not only the tactical level that will be contested as it always has been. Rather, we are already seeing our adversaries begin to impede our ability to operate at all levels of warfare, including the homeland at the national strategic level.

Improvisation

Finally, in the challenging near future, we must remain able to improvise with sustainment operations. We are already

gaining reps and sets in this area in the Indo-Pacific Command area of responsibility with joint and multinational exercises like Talisman Sabre and Keen Edge. The 8th Theater Sustainment Command’s ability to adapt and improvise during these exercises has given them valuable lessons in successfully sustaining joint/multinational forces.

Current conflicts around the world and the growing abilities of stronger, more capable adversaries demonstrate a need to refine policies, strategies, and preparations for the future fight in a contested environment. With a collective effort from the Army sustainment enterprise, we rise to the challenges presented by contested logistics. Nesting our concept in guiding statutes, directives, policies, and doctrine ensures we will be successful. Moreover, when tied to our eight sustainment principles, we have a better understanding of the complex problem we are trying to solve and how to win in any environment.

Lt. Gen. Heidi J. Hoyle currently serves as Headquarters, Department of the Army, Deputy Chief of Staff, G-4, and oversees policies and procedures used by Army Logisticians. A graduate of the U.S. Military Academy, she has a Master of Science in systems engineering from the University of Virginia and a Master of Science in national resource strategy from the National Defense University. She is a graduate of the Chemical Officer Basic Course, Combined Logistics Officer Advanced Course, United States Army Command and General Staff College, Kansas, and the Eisenhower School of National Security and Resource Strategy, Washington, D.C.

Transforming Army Sustainment to Contend with a Contested Logistics Environment



■ By Maj. Gen. Mark T. Simerly, Col. Marchant Callis, and Maj. Ryan J. Legault

As the Army pursues transformational change to execute large-scale combat operations against peer adversaries in a multidomain operations environment, the sustainment warfighting function faces the challenge of effectively modernizing its forces and capabilities to

maintain pace with the transforming Army. The future operational environment (FOE) presents a sensor-rich, transparent, lethal, and multi-dimensional landscape where friendly forces will be under constant observation and face new and deadlier threats to the homeland, forward deployed forces, and air and sea lines of communications while contending with a host of disruptive effects associated with new technologies. Daunting as they are, these are the characteristics associated with this contested logistics environment.

Officially, Title 10 of the U.S. Code (10 USC § 2926) defines the contested logistics environment as “an environment in which the armed forces engage in conflict with an adversary that presents challenges in all domains and directly targets logistics operations, facilities, and activities in the United States, abroad, or in transit from one location to another.” Consequently, future sustainment forces must

be prepared to effectively operate in this setting across the land, maritime, air, cyber, and space domains from a strategic distance where no sanctuaries exist, regardless of the location or proximity to the locus of conflict. As we continue modernizing sustainment capabilities, the following areas will be critical to mitigating the effects of a contested logistics environment: decision dominance, autonomous distribution, demand reduction, advanced power, and maritime operations.

With these areas serving as a guidepost, the Army sustainment enterprise must transform to provide our combat forces the ability to prevail against a peer threat in the FOE. Continued and successful modernization efforts will ensure sustainment remains a pacing function, where that pacing function is fundamental to victory on the battlefield and the achievement of campaign objectives and national-level goals.

Decision Dominance

Sustainment requires the ability to collect and manage a massive amount of data through a resilient platform that is predictive, near real-time, and integrated into the mesh network to maintain the operational tempo required. No single human has the cognitive capacity to compete with decisions made at quantum speed or enhanced by artificial intelligence (AI). Seeing, directing, and sustaining distributed forces across domains requires modernizing our forces, capabilities, and processes to adapt to the changing environment. Through the use of AI and machine learning, we must aggregate the right data captured from sensors arrayed across the battlefield and synthesize that data into actionable intelligence. Doing so will afford commanders the ability to make informed, real-time decisions to meet current requirements while providing a depth of understanding over time to effectively shape future efforts. A comprehensive and common sustainment operating picture, incorporated into the operational picture, complements decision dominance and further enforces sustainment as a pacing function alongside maneuver. This sustainment operating picture should be tailored by echelon, where that picture would include different information, geography, and time horizons appropriate to the level of command at which the picture is being used.

Achieving decision dominance through modernized and data-centric capabilities will enable predictive logistics, where commanders can

more clearly see and effectively meet warfighter requirements ahead of need. By extension, this will ensure the Army's ability to achieve precision sustainment — sustainment that is not only just in time but just enough as well.

Autonomous Distribution

Autonomous distribution, inclusive of autonomous-capable modes and nodes, positively alters risk calculus, where commanders will likely take much greater risks with machines than they otherwise would with Soldiers' lives. Future sustainment operations will benefit from autonomous capable systems that can navigate extended distances to increase endurance, directly addressing strategic to tactical distribution gaps and survivability challenges. Operating in this manner would also enable the reallocation of manpower to address higher-level tasks that require human reasoning and operational judgment. In all cases, autonomous distribution must provide reliable, responsive, and agile options arrayed across the battlefield to ensure survivability and operational reach. Key to leveraging this autonomy will be a resilient sustainment network that provides a reliable means to pass data and exercise mission command activities across a wider number of locations in support of a more distributed battlefield.

Demand Reduction

Lighter, leaner, and just as effective combat power is critical to the force's ability to operate semi-independently with a level of prolonged endurance

that adversaries cannot match nor sustain themselves. We should seek to achieve this lighter, leaner, and just as effective methodology by focusing on demand reduction at the platform level, which by extension provides reverberating and beneficial effects across the entire supply chain, from foxhole to factory and back. Advanced manufacturing throughout the supply chain, production at the point of need, and commonality across platforms are just a few key initiatives to reduce not only distribution requirements but the overall risk to the force as well. Initiatives such as the Common Tactical Truck will standardize the fleet while increasing interoperability across the joint force, flattening the supply chain, and streamlining effectiveness to keep pace with a more dynamic battlefield. Setting and achieving goals in this area will create a more effective, efficient, and survivable force, which is critically important within the context of a contested logistics environment.

Advanced Power

Advanced power solutions and platforms will enable maneuver forces to overmatch the adversary's operational tempo. Power generation and power distribution are becoming more advanced and efficient, requiring less space, weight, and power to operate in austere areas. Autonomous distribution and AI will increase effectiveness at the point of need and provide opportunities for continued growth in energy production, distribution, and storage. Continued advancements in research and development, including bio-

manufacturing and synthetic biology, could enable energy independence at the formation level beyond 2040. Minimizing communication requirements, advancing battery technology, and examining methods to recharge on the move all support the future of energy storage. Sustainment's provision of advanced power systems will play an important role in providing the flexibility and continuity of operations our forces will require on a fast-paced, more dynamic, and lethal battlefield.

Maritime Operations

Army maritime lift capability must integrate with special forces and the maneuver force, increase protection measures at the platform level, and incorporate the Army's maritime mobility capability into the overall scheme of maneuver at the theater level and below. Speed and range to ensure operational relevancy, capacity to deftly move fully intact unit forces, interoperability with joint and partner naval and land forces, and survivability to operate in non-permissive, contested environments are all essential. To enable this, we must ensure the presence of a robust joint communications system that possesses interoperable command, control, communication, computers, cyber, intelligence, surveillance, reconnaissance, and targeting capabilities so Army maritime vessels can contribute to and benefit from the joint force writ large. Ultimately, maritime operations must enhance joint operational maneuvers and sustainment through seamless integration. This will provide geographic combatant commanders

with the options required to exploit windows of opportunity, where they would possess the freedom of action to move combat power and support combat operations as required.

There is strong historical precedence for this, with Army watercraft systems serving an integral role in every major American military conflict from World War II forward. A more recent example includes Operation Just Cause, where amphibious landings showcased the effective use of landing craft, mechanized vessels to transport personnel and equipment to the point of need. Considering the pacing threat, the future portends more of the same, where advancements in maritime operations appear vital to providing future combatant commanders the maritime distribution capability they will certainly require.

Conclusion

The Army must invest in all warfighting areas, including sustainment. Recognizing that large-scale combat within the context of a contested logistics environment places a premium on the ability to robustly sustain forces over extended time and distance, modernizing sustainment capabilities is non-negotiable. We should guide strategic resourcing decisions by focusing on five key areas: decision dominance, autonomous distribution, demand reduction, advanced power, and maritime operations. Investing in these areas will afford the Army the opportunity to address known gaps from the strategic to the tactical. At the same time, sustainment

leaders must continue to remain agile, dynamic, and responsive to the changing FOE. In this way, it is not just about modernizing materiel platforms — it is about transforming the force through formation-based capabilities that benefit from updated doctrine, organizations, training, leader development and education, policy, and facilities.

The challenge is clear, and the call to action from our nation's most senior leaders has been formally registered. The question is no longer about if we transform but about how we transform and where sustainment should and will play a central role.

Maj. Gen. Mark T. Simerly served as the commanding general of Combined Arms Support Command at Fort Gregg-Adams, Virginia. He previously served as the commander of the 19th Expeditionary Sustainment Command. He was commissioned as a lieutenant of Air Defense Artillery and was a Distinguished Military Graduate from the University of Richmond, Virginia. He holds a Master of Science in national resource strategy from the National Defense University, Washington, D.C., and a Master of Military Arts and Sciences Degree from the Army Command and General Staff College, Kansas.

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COMPRESSING the Spring

How III Armored Corps Sustains Large-Scale Combat Operations

■ By Maj. Jeffrey D. Horning

“The line between disorder and order lies in logistics.” – Sun Tzu

Early in the military decision-making process (MDMP) for Warfighter Exercise (WFX) 23-4, Lt. Gen. Sean C. Bernabe, commander of III Armored Corps (IIIAC), provided his intent. As a key task, Bernabe directed the staff to spring-load the corps. He described spring-loading as a warfighting function agnostic concept that physically and mentally maximizes operational reach and enables corps endurance through the depth of an operation. This non-doctrinal concept rapidly subsumed the collective conscience of the IIIAC sustainment enterprise as the staff sought to understand and implement the tactics and techniques required to achieve operational success.

What is Spring-Loading?

In implementation, spring-loading is the physical, temporal, and mental conditions set by a higher command, enabling subordinate units to advance rapidly and conserve as much energy as possible prior to enemy contact. Think of a spring rapidly expanding and pushing a force on the battlefield as it is launched forward. Physically, sustainment units spring-load a supported unit by posturing rear-echelon sustainment forward, task-organizing critical capabilities to the supported unit, and providing throughput distribution at decisive points. Temporally, the higher command spring-loads through deliberate synchronization of efforts, including absorption of subordinate rear areas as the forward line of

troops advances. Mentally, spring-loading is an established mindset where commanders and their staffs always press harder, faster, or further to beat an enemy to the decisive point and achieve a position of relative advantage.

Critical to the spring-load concept is recompressing the spring. A command must continuously seek to recompress to maintain tempo, maximize endurance, and prevent culmination. As a force loses momentum, the higher echelon recompresses and propels the force forward once more. The absorption of rear areas is part of recompression, enabling subordinates to remain forward-focused. Commands must continuously shift sustainment

forward on the battlefield and remain tightly linked with subordinate commands, shortening their lines of communication (LOCs) and accepting (and mitigating) risk with survivability and precision. Successful spring-loading maximizes a force's endurance and provides commanders at echelon with agile options to achieve success.

Spring-Loading in Doctrine

Spring-loading is non-doctrinal, but the concept is grounded in the Army's capstone doctrine, Field Manual (FM) 3-0, Operations, and the in-revision FM 4-0, Sustainment Operations. Within doctrine, spring-loading is a sustainment-centric effort to describe maximizing operational reach to prolong endurance. FM

4-0 defines operational reach as the “distance and duration across which a joint force can successfully employ military capabilities.” Operational reach provides a spatial and temporal measure for the sustainment enterprise to gauge capacity at echelon. Spring-loading increases capacity and forward positions capacity while synchronizing efforts, enabling units to fight deeper across the battlefield.

Maximizing operational reach is half the problem; units must also maximize endurance. FM 3-0 defines endurance as “the ability to persevere over time throughout the depth of an operational environment.” While spring-loading sets conditions for initial operational reach,

recompressing the spring enables a force to extend the endurance of its operations through the operational environment (OE).

Maximizing Operational Reach

During WFX 23-4, IIIAC maximized operational reach through several methods. Through mission analysis, IIIAC identified critical capability gaps and task-organized key transportation systems to increase capacity at forward echelons. IIIAC ensured corps and division capacity remained at maximum capacity upon initiating the ground offensive by coordinating throughput distribution from the 21st Theater Sustainment Command (TSC). Combined, these efforts set the spring for IIIAC's

forces to seize the initiative from the enemy and maneuver to positions of relative advantage.

Mission-Oriented Sustainment Task Organization

IIIAC required divisions to maneuver farther in this OE than in any recent operation, driving an increased need for forward haul capacity and critical distribution assets. The 13th Armored Corps Sustainment Command (13th ACSC) provided 1st Armored Division (1AD) and 1st Cavalry Division (1CD) operational control (OPCON) of a 5k-gallon fuel distribution platoon and a palletized load system (PLS) platoon, thereby increasing division capacity by 150k gallons of fuel distribution and 30 PLS systems. In turn, 1AD and 1CD attached these capabilities to their distribution companies. The 13th ACSC also established a fires support logistics detachment to support the two field artillery brigades (FABs), providing OPCON to the force field artillery headquarters (75th FAB). The fires support logistics detachment consisted of a PLS platoon, medium tactical vehicle platoon, 60k gallons in fuel distribution, 20k gallons in water distribution, and recovery capabilities to fill capability gaps within its brigade support battalion, enabling the FAB to carry an additional basic load of critical rocket munitions.

Providing capacity to forward echelons is only useful if the capacity is filled. IIIAC provided all stockages

of critical Class V rocket munitions to the FABs and divisions, leaving nothing in reserve with the ACSC. Additionally, IIIAC continuously pursued support from the enterprise to provide more than the controlled supply rate of munitions, enabling subordinate commanders to manage available stocks without constraint. Commanders understood on-hand stocks equaled available stocks and leveraged them accordingly.

As part of MDMP, corps planners coordinated with the ACSC to manage command and control of the significant sustainment assets available. Through MDMP, the 13th ACSC tasks were organized into two mission-oriented sustainment brigades. The first focused on general support (GS) within the corps support area (CSA) using supply point distribution, and the second focused on direct and reinforcing support to the divisions through unit distribution and throughput. The GS sustainment brigade maintained distribution capacity to support the separate brigades, which was critical to rapidly position assets forward as the corps’ rear area expanded. The direct support/reinforcing support sustainment brigade consisted of predominantly transportation assets conducting transfers between stocks held at the GS brigade and the supported divisions.

Throughput Distribution

IIIAC coordinated with 21st TSC for throughput distribution of fuel. IIIAC recognized maximum endurance can only be achieved if all corps and below assets complete

a forward passage of lines (FPOL) at 100% of uploaded Class III capacity. The 21st TSC’s critical support to this effort included fuel system supply point (FSSP) bags delivered and filled at divisional tactical assembly areas (TAAs) and throughput to each brigade combat team as they passed through Polish II Corps.

Leveraging 21st TSC fuel bags at the TAA enabled division assets to remain uploaded while they drew from the TSC bags. Once the divisions completed FPOL, the bags were returned to 21st TSC for use at future CSA nodes. Similarly, throughput from 21st TSC at FPOL enabled divisions’ and corps’ assets to cross the line of departure at max capacity, adding critical hours to their endurance as they raced northward. While establishing the various CSA nodes, the TSC throughput to the FSSPs provided the direct support/reinforcing support sustainment brigade with the freedom to focus on unit distribution to the divisions.

Prolonging Endurance

Endurance’s focus on operations over time through depth requires sustainment forces to recompress the spring repeatedly or face culmination. To prevent culmination, the corps rear must continuously expand forward to reduce the division rear area and enable divisions to remain maneuver-focused. Support areas must remain agile, redundant, and non-contiguous to ensure survivability against enemy precision fires. Lastly, planners must identify opportunities to seize and leverage critical infrastructure to enable shortened LOCs. Successful

execution of these efforts will prolong endurance and enable forces to recompress the spring continuously.

Multi-Nodal Echeloned Sustainment

During WFX 23-4, IIIAC developed an agile sustainment plan for spring-loaded distribution from a multi-nodal CSA cluster. IIIAC planned five purpose-built CSA nodes throughout the area of operations (AO). Up to four nodes would be open anytime, though the scope and purpose would adjust throughout the operation. IIIAC planned two forward logistics elements (FLEs) oriented toward each U.S. division to expand the nodes’ reach.

In execution, IIIAC leveraged a C-130 airfield within Poland (CSA 1) for the initial reception of personnel and equipment, then rapidly expanded to a standard gauge intermodal terminal just across the Lithuanian border (CSA 2). CSA 2 enabled 21st TSC to throughput directly to the furthest forward standard gauge rail terminal, shortening ground LOCs by three hours one way. The intermodal terminal became the primary logistics hub in Lithuania during the early phases of the operation.

As divisions expanded north, 13th ACSC established FLEs in the 1CD and 1AD AOs, focused on forward positioning sustainment and relieving divisions of the growing LOCs. As IIIAC established a hasty defense, these temporary FLEs became semi-permanent CSA nodes (CSA 3 and

4) focused on sustaining the division fight. Centered on critical road junctions, these sites enabled forward positioning of corps sustainment assets tucked within the division rear.

As the Air Force completed an assessment of a critical C-17 capable airfield, the 13th ACSC established the last CSA node (CSA 5), immediately receiving C-130 and C-17 resupply from this forward location. Had operations continued, the former FLE sites would have collapsed into a further forward node (CSA 6), enabling IIIAC to leverage a C-5 capable airfield, broad gauge intermodal terminal, and critical main supply route junction in central Lithuania.

IIIAC’s nodal construct enabled the sustainment enterprise to remain agile to the needs on the battlefield at risk of an ever-expanding rear area. Divisions were relieved of looking rearward as the corps remained tucked in behind their formations, pushing them forward with overwhelming sustainment capacity. While each node was purpose-built, they remained multifunctional, and their forward presence enabled both division endurance and corps consolidation of gains.

Survivability Leveraging Fires Doctrine

The multi-nodal construct successfully supported IIIAC’s operations, but the forward positioning created significant risk in the face of enemy precision fires. As mitigation, IIIAC adopted a field artillery concept to enable

sustainment survivability. Per FM 3-09, Fire Support and Field Artillery Operations, in field artillery terminology, the position area for artillery (PAA) is “an area assigned to an artillery unit where individual artillery systems can maneuver to increase their survivability.” The PAA enables an artillery force to fire and then maneuver before enemy counterbattery fire arrives. IIIAC and 13th ACSC modified this concept for sustainment, creating the position area for sustainment (PAS).

The PAS became the battlefield framework sustainment component that enabled divisions to become unencumbered from managing large rear areas. Essentially, the PAS is a geographic area within which a tailorable FLE conducts survivability moves. The PAS enables an FLE to cache assets for pre-coordinated use while critical assets, personnel, and mobile equipment remain in a survivable location.

In a multidomain fight, sustainment will always be under surveillance, and the PAS provides some mitigation to the pattern-forming habits of sustainment operations. The PAS can be used between subordinates and the FLE or internal to a single echelon. For example, the PAS may have four pre-identified logistics release points (LRPs) that may or may not have equipment. These LRPs are unmanned, unsecured, and essentially sitting in a cold status. Two units coordinate to change an LRP’s status within the PAS to hot

and meet at that location to conduct distribution. After the resupply is complete, they return to their separate locations.

Suppose the enemy continues watching that LRP; it may be days before those units use that location again. Instead, they are leveraging the other LRPs within the PAS. Intelligence collection becomes resource-intensive for the enemy as they have multiple locations to collect on. Additionally, targeting becomes less effective due to the smaller scope of each LRP within the PAS. A single PAS may contain a full FSSP, but each LRP only has a 50k bag with the pump held separately with the personnel. If the enemy does target an LRP, loss of personnel and assets would be minimal compared to a strike on a standard corps support/division support area, and the enemy would have exposed a critical fires asset to friendly counterbattery fire.

Organizing and Training the Spring

During LSCO, commanders must organize their forces to increase capacity at echelon. The corps cannot simply meet subordinate requirements; they must exceed them to enable compression of the spring. Mission dictates the specific assets, but the corps must task-organize divisions with the capacity for a full day of supply of every commodity in a single lift. As demonstrated by the fires support logistics detachment, the FAB requires organic lift capacity to enable agile positioning of Class V. Lastly, companies within

the corps sustainment command must organize for multifunctional operations. The Army should develop a composite logistics company akin to the composite supply and composite truck companies, which would be distribution-focused with multifunctional assets capable of operating as FLEs across multiple PASs. Regardless, the Army must develop a multifunctional company-level solution to enable sustainment survivability across a dispersed environment.

Spring-loading introduces complexity, and commanders must train to simplify the concepts described here. Sustainment forces must be capable of cross-boundary communication and rapid relocation during phase transitions. The corps sustainment command must train with division sustainment brigades to build relationships and streamline operations within the division rear area. Survivability demands the base cluster become the norm for sustainment operations. Lastly, sustainers must train as a task-organized force, including Compo 2 and 3 partners, when available, to build resilience to the inherent friction of multifunctional operations.

Recommendations

Multidomain operations require experimental solutions to rapidly changing problems, or else the Army faces outpacing by its competitors. IIIAC developed the concept of spring-loading to solve one of these problems: how does the corps maximize operational

reach and prolong endurance across a multidomain contested OE? Mission-oriented task organization, throughput distribution, multi-nodal support areas, and the advent of the PAS combined to set and recompress the spring throughout WFX 23-4. The spring-load concept enabled divisions to advance over 150 kilometers in under two days before enemy resistance forced a hasty defense.

Sustainers at echelon should consider and replicate these radical and non-doctrinal efforts to determine their feasibility for inclusion in future sustainment doctrine: continue to task organize forward and enhance subordinate capacity, distribute sustainment across multiple tailored and agile nodes, leverage the capabilities of higher echelon sustainment forces to maintain forward capacity, and ensure survivability through use of the PAS and mobile LRPs. Through continued anticipation and improvisation, sustainers can keep pace with their maneuver counterparts and ensure supported commanders have the endurance to achieve victory.

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Logistics in the Indo-Pacific

Setting the Theater for a Conflict Over Taiwan
■ By Col. Gabriel W. Pryor



The downside of greater decentralization was, of course, increased logistics requirements.

The likelihood of a U.S. military conflict with China over Taiwan in the next decade continues to increase. Over the past two decades of war in Iraq and Afghanistan, the U.S. military has underinvested in critical strategic logistics and sustainment capabilities to deploy, fight, and win in the Indo-Pacific. In her February 2022 message to the force, Secretary of the Army Christine E. Wormuth stated, “We stand ready to deter and defend around the globe, as the tip of the spear in Europe and the backbone of the joint operations in the Indo-Pacific.” Examining the strategic deployment of forces during World War II is critical to understanding how the United States should invest in the future logistics and sustainment capabilities in the Indo-Pacific. This article argues that due to the contested environment in the Indo-Pacific, the United States requires increased forward presence, additional Army watercraft, and modernized Army pre-positioned stocks (APS) to deter or defeat a Chinese attack on Taiwan.

Contested Logistics in the Indo-Pacific

Xi Jinping, the general secretary of the Communist Party and chairman of the Central Military Commission of China, has stated since 2012 that the Chinese dream is for China to become a fully developed nation by 2049, which will be the 100th anniversary of the People’s Republic of China (PRC). The PRC’s position is Taiwan has been a part of China since the Republic of China

ceased to exist in 1949. To forestall intervention by external forces in a conflict over Taiwan, China has invested heavily in developing and employing anti-access and area denial (A2/AD) weapons in the Indo-Pacific. The purpose of A2/AD weapons is to deny, by air and sea, the deployment of forces that would threaten China in a conflict.

During World War II, logistics in the Indo-Pacific were challenging for two reasons: first, the requirement for dispersal due to modern weapons like enemy attack and long-range aviation; and second, the underestimation by Army and Navy planners of the logistics required to support numerous dispersed locations. As a staff officer for the Service Force commander, U.S. Pacific Fleet, from December 1943 to December 1945, Henry E. Eccles was the officer in charge of the Advance Base Section and was responsible for developing and directing the establishment, administration, and logistic support for constructing and maintaining all Central Pacific Ocean Area advanced base units. Eccles wrote that modern weapons like attack and long-range aviation had created a need for tactical and logistic dispersal, demanding greater decentralization. The downside of greater decentralization was, of course, increased logistics requirements. Army and Navy planners initially underestimated the logistics required to support numerous dispersed Central and Southwest Pacific locations. These logistics shortfalls resulted in the leapfrogging or island-hopping

military strategy used by Gen. Douglas MacArthur and his air and sea commanders, Gen. George Kenney and Adm. Chester Nimitz, in the war against Japan.

Like the Japanese Kamikaze attacks from World War II, the current A2/AD threat in the Indo-Pacific is challenging the DOD’s ability to project power around the globe. In 2021, the Joint Chiefs of Staff vice chairman discussed in a press conference how the DOD had developed a new concept called expanded maneuver to deter China and Russia from possible future aggression. The vice chairman described the four functional battle areas within expanded maneuver as contested logistics, joint fires, all-domain command and control, and information advantage.

In response to the DOD’s expanded maneuver concept, the services, notably the Army and the Air Force, are developing new solutions to conduct logistics in a contested environment. In the DOD, the Army is the executive agent for common user logistics in support of the joint force, interagency, and, when appropriate, allies and partners. In this role, the Army’s Combined Arms Support Command leads efforts on three joint logistics enterprise modernization projects to support the joint force in a contested environment. The Army aims to deliver a calibrated force posture to sustain and project force during multidomain operations through three lines of effort: resilient and integrated sustainment mission



Soldiers assigned to 8th Theater Sustainment Command, 25th Infantry Division, 599th Transportation Brigade, 402nd Army Field Support Brigade, Department of Defense Contractors, and elements from the U.S. Navy offload military vehicles as part of the Army Pre-positioned Stock 3 Fix-Forward (Afloat) from the U.S. Naval Ship Watson at Honolulu, Hawaii, Dec. 1, 2022. (Photo by Sgt. Kyler L. Chatman)

command and control, assured joint power projection, and the ability to sustain in a distributed environment.

In 2019, a RAND Corporation study recommended the Air Force develop three types of bases for implementing sustainment operations in a contested environment: a stay-and-fight base that has significant passive and active defenses and robust sustainment, a drop-in base with fewer defenses and more limited sustainment capabilities, and austere forward arming and refueling points that would open for hours and close before the enemy could detect them.

In the Pacific during World War II, the services experienced the challenges of executing logistics in contentious environments. The evidence is clear: China’s current A2/AD threat in the Indo-Pacific challenges the DOD’s ability to project power. The DOD and the services are developing new strategies for conducting logistics in a contested environment. In particular, the Army and the Air Force are developing new joint operating concepts for logistics to enable them to fight and win together in such environments. The DOD and the services are moving forward, but are they planning for enough

logistics forces to support greater decentralization due to operating in a contested environment in the Indo-Pacific?

The Army’s positioning in the Indo-Pacific

The United States requires the increased forward presence of forces in the Indo-Pacific to deter or defeat a Chinese attack on Taiwan. What role should the Army play in the Indo-Pacific? Some argue the Army should position forces in the first or second island chain as a tripwire or be prepared to be a decisive land force, while others say that if China conducts a cross-strait operation to

attack Taiwan, the Army must be positioned to support a credible land force as an enabler to the joint force.

A 2020 report from the U.S. Army War College Strategic Studies Institute found the U.S. military is misaligned in both strategy and deployment capability for dealing with a changing PRC. Additionally, they found the current U.S. posture concentrated in Northeast Asia is positioned to prosecute a second Korean War and would not be conducive to effective hypercompetition with an increasingly capable PRC. Hypercompetition is defined in the study as an ongoing struggle to gain, hold, and exploit transient military advantages. The study recommends the Army adopt and adapt to four transformational roles in the U.S. Indo-Pacific Command area of responsibility: the Army as the grid, the Army as the enabler, the Army as the multidomain warfighter, and the Army as the capability and capacity generator. The purpose of the grid is to provide options to joint force commanders conducting effective multidomain maneuvers.

While some argue that stationing brigade-sized or larger Army units in the Indo-Pacific would deter future conflict with China over Taiwan, another option is creating multiple overt or covert pre-positioning and forward operating locations to deter China. These locations throughout the Indo-Pacific would allow the Army to support the joint force and simultaneously create multiple potential locations for basing land

forces, creating a dilemma for the PRC. If China conducts a cross-strait operation to attack Taiwan, the Army must be positioned as a grid to support a credible land force to enable the joint force.

The role of Army watercraft in the Indo-Pacific

Logistics planning failures on behalf of the Army and Navy in the early years of World War II resulted in underestimating the small ships and vessels required to support MacArthur's operations in the Southwest Pacific. China's current A2/AD threat in the Indo-Pacific necessitates a new look at the number of Army watercraft required to support multidomain operations.

The Army faced some of the most challenging sustainment problems of the war in the Southwest Pacific. Long distances and the lack of transportation assets in theater complicated MacArthur's plans to resume the attack on Japanese forces in New Guinea in 1942. The problem was the Navy could not support MacArthur's operations in the Southwest Pacific until 1943, so MacArthur took action. In March 1942, MacArthur appointed Brig. Gen. Arthur R. Wilson, the quartermaster general and assistant chief of staff, G-4, U.S. forces in Australia, to the project and tasked him to build a small ships capability. On July 14, 1942, the Army formally announced the formation of the U.S. Army Small Ships Section. The newly formed team assembled a fleet of small watercraft by traveling throughout the region, procuring

small commercial vessels suitable for military use and capable of operating in the shallow coastal waters of New Guinea.

On October 18, 1942, the Allies conducted the first landing on New Guinea using ships never designed for amphibious operations. MacArthur's small ships section filled the critical shortage caused by the planning failures of the Army and Navy in the Southwest Pacific. The Army operated an estimated 127,793 vessels, compared to the 74,708 vessels operated by the Navy. The Army afloat was primarily a transportation organization, while the Navy was primarily combatant.

The Army has approximately 132 watercraft in inventory and has considered courses of action to reduce its inventory further. Although the newest Army watercraft are capable, the Army must look to the challenges of past conflicts in the Southwest Pacific during World War II to determine the correct size of the Army watercraft fleet required to fight another island-hopping military strategy if China attacks Taiwan.

The Purpose of APS in the Indo-Pacific

Throughout history, pre-positioned stocks have enabled freedom of maneuver and the element of surprise in warfare. As tactics and weapons evolved, so did the strategies used to pre-position stocks. Modernized and forward-deployed APS will be a decisive factor for success in multidomain

operations and supporting the joint force in the Indo-Pacific.

The APS program consists of pre-positioned unit sets of equipment, operational project stocks, Army war reserve sustainment stocks, and war reserve stocks for allies. When considering APS, most think about pre-positioned unit sets consisting of equipment configured into mission-driven sets and positioned ashore and afloat to reduce deployment response times. There are five APSs located around the world. Due to previous regional conflicts, most pre-positioned stocks supporting the Indo-Pacific are in northeast Asia.

APS within the first or second island chain would be required in a contested environment to deter or defeat a Chinese attack on Taiwan. The first chain of major archipelagos from the East Asian continental mainland coast is commonly called the first island chain. It includes the Kuril Islands, the Japanese archipelago, the Ryukyu Islands, Taiwan, the northern Philippines, and Borneo. The second island chain is formed from Japan's Bonin and Volcano Islands, the Mariana Islands, the West Caroline Islands, and western New Guinea. Although important, APS is only one leg of the strategic mobility triad.

The strategic mobility triad is defined as strategic mobility, strategic airlift, and pre-positioning. Changes in the strategic situation and the development of game-changing weapon systems have occurred in

the past and will continue occurring in the future. Both have impacted how the Army uses pre-positioning to achieve strategic objectives as part of the strategic mobility triad. Navy Capt. Jack E. King wrote about the effect the fall of the Berlin Wall had on the decisions and strategies Air Force planners considered when planning the future disposition of war reserve materiel (WRM) in Europe.

Air Force planners considered removing all the WRM from pre-positioned locations in Europe after the fall of the Berlin Wall. Similarly, China's current A2/AD weapons threat in the Indo-Pacific warrants rebalancing the strategic mobility triad away from Northeast Asia. A2/AD weapons threaten strategic airlift and sealift, resulting in a needed change of strategy for APS. The Army's strategy requires a great deal of relationship-building with more countries to configure APS for the Indo-Pacific.

Conclusion

A thorough examination of contested logistics, the Army's positioning, the role of Army watercraft, and the purpose of APS are critical to understanding how the United States should invest in the logistics capabilities required in the Indo-Pacific to deter or defeat a Chinese attack on Taiwan. A look at the challenges the services experienced in the Southwest Pacific during World War II illustrates the difficulty of conducting logistics in a contested environment. History must guide understanding of the

mistakes that were made in the past to inform future strategies. Due to the contested environment in the Indo-Pacific, the United States requires increased forward presence, additional Army watercraft, and a modernized and dispersed APS strategy to deter or defeat a Chinese cross-strait operation to attack Taiwan.

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Feature Photo
Australian civilians attached to the U.S. Army conduct resupply between an Army barge and sea mule of the Small Ships Section in Sydney Harbour, Australia, on Jan. 31, 1943. (Image from the collection of Arthur James Carfax-Foster who served with the Small Ships Section from September 1943 until January 1946. This image copyright expired, public domain.)



Training Logistics Through Campaigning

■ By Maj. Gen. Jered P. Helwig and Michael A. Crees

Warfighting is fundamental to the Army. World-class warfighting requires world-class multi-echeloned training that rehearses critical tasks and develops staff skills. Training must incorporate all warfighting functions — especially sustainment. The growth of near-peer competition in the Indo-Pacific theater demands Army logistics units train in ways that stretch and hone their skills while simultaneously preparing/setting the theater. This approach doesn't fit into the structured and intensive training environments of combat training centers or warfighter exercises. Instead, Operation Pathways is the campaign that generates enough load to rehearse sustainment training objectives at echelon, integrate logistics with allies and partners, and

facilitate the employment of Army pre-positioned stocks (APS) to set the theater.

Indo-Pacific Sustainment Challenges

Theater sustainment commands (TSCs) and expeditionary sustainment

commands (ESCs) play pivotal roles in ensuring operational readiness within the Army. These entities are integral to the strategic framework of military logistics, particularly in the expansive and diverse Indo-Pacific theater. TSCs and ESCs provide the critical support backbone necessary

for the successful execution of military operations, ranging from supply chain management to equipment maintenance and personnel services.

In the vast and complex landscape of the Indo-Pacific, the challenges faced by these commands are multifaceted.



Army mariners assigned to the 368th Seaport Operations Company and 331st Transportation Company construct a causeway adjacent to Merchant Vessel Maj. Bernard F. Fisher off the coast of Bowen, Australia, during Talisman Sabre July 29, 2023. (Photo by Sgt. Ashunteia' Smith)

The region's geographical expanse, coupled with a diverse range of operational environments from dense urban centers to remote island chains, necessitates a high degree of logistical agility and adaptability. Moreover, the strategic significance of the region, marked by heightened regional tensions and evolving security dynamics, underscores the criticality of sustainment operations in this theater.

Customizing training objectives for TSCs and ESCs is essential to prepare them for the unique challenges they face. Conventional training programs designed for more predictable environments are insufficient in addressing the dynamic and often unpredictable conditions in this region. As such, training for these commands must encompass a broad spectrum of scenarios, from rapid deployment and sustainment

in austere environments to complex joint and multinational operations.

The training must also integrate modern technological advancements and logistical innovations to enhance the efficiency and effectiveness of these commands. For instance, leveraging data analytics for supply chain optimization and incorporating advanced communication systems for better coordination across diverse

terrains are critical areas for inclusion in training programs.

Effective training for TSCs and ESCs is not just about maintaining operational readiness; it's about ensuring strategic superiority in a region critical to global security. The ability of these commands to sustain forces effectively under a variety of conditions directly impacts the Army's capacity to project power and maintain a credible deterrent posture.

Operation Pathways

For sustainers, Operations Pathways is the U.S. Army Pacific Command exercise that connects exercises across the Indo-Pacific into a singular rehearsal of multi-echeloned, joint, coalition sustainment capability and employment across the region. By integrating exercises as phases of the operation, sustainers can tease out the realities of protracted sustainment operations in this theater. Operation Pathways 23 and the exercises it encompassed offered invaluable insights that exemplify the advancements in command and control (C2) integration and the development of a shared understanding critical for modern military operations. These operations, activities, and investments (OAIs), particularly notable for their complexity and scope, have significantly enhanced the agility and interoperability of Army logistics units in concert with allied forces.

The peak sustainment exercise within Operation Pathways 23,

Talisman Sabre 23, highlighted the efficiency and capability of integrated sustainment. In an exercise of over 30,000 troops from 13 nations, the combined joint TSC seamlessly integrated sustainment coordination and capabilities to sustain the operation. This collaboration was not just about aligning communication channels but a sophisticated exercise in synchronizing operational strategies, logistics planning, and execution methodologies across different military cultures and systems. The exercise demonstrated the capacity of Army units to adapt and operate within a joint command structure, showcasing an exemplary level of agility and coordination in a multinational context.

The outcomes of these OAIs have been instrumental in building a shared understanding among allied forces. This understanding goes beyond mere tactical alignment; it encompasses a deeper appreciation of each other's operational methodologies, constraints, and capabilities. The agility gained through these exercises is a testament to the effectiveness of rigorous, realistic training in preparing sustainment units for the complexities of contemporary warfare.

These insights gained are more than just training scenarios; they are practical demonstrations of the evolving nature of military logistics and support in the 21st century. The lessons learned and the capabilities demonstrated in these OAIs are invaluable in shaping the future

operational strategies of the Army and its allies in the Indo-Pacific theater.

The upcoming Operation Pathways 24 OAIs are poised to set new benchmarks in military training, particularly in the realm of sustainment operations. These exercises are meticulously designed to address emerging challenges and enhance the operational capabilities of the Army in the dynamic Indo-Pacific theater.

Joint Sustainment Training

Campaigning is a joint endeavor and requires integration across the joint force. The Army has a critical role within the joint force to provide sustainment, particularly for transportation and fuel. To successfully sustain the joint force in crisis and conflict, the Army must integrate and rehearse during competition.

Pacific Sentry 23 expanded on this theme of integration. In collaboration with the Pacific Fleet logistics task force, the exercise presented a unique opportunity to test and refine joint operational tactics. The synchronization of logistics and support operations in a simulated high-threat environment was particularly significant. It provided a realistic context for testing the responsiveness and adaptability of sustainment units under pressure. This exercise underscored the importance of a cohesive approach to logistical challenges in a joint operational setting, enhancing the readiness of U.S. forces for real-world scenarios.

In a theater containing the world’s largest ocean, sustainment operations from ship to shore are vital. Joint petroleum over-the-shore (JPOTS) and joint logistics over-the-shore (JLOTS) are instrumental in maintaining logistical operations when critical infrastructure is degraded or contested by enemy forces. JPOTS enables the transfer of fuel from offshore vessels to inland distribution points, circumventing disrupted or non-existent ground supply routes. Army logisticians expertly and vividly demonstrated this capability during exercises like Talisman Sabre 23, where a fuel pipeline was established in a simulated contested environment, ensuring uninterrupted fuel supply critical for sustained operations.

Similarly, JLOTS facilitates the discharge of vehicles, equipment, and supplies from sea to shore, bypassing damaged or enemy-controlled ports and airfields. This system is vital when traditional logistics hubs are compromised, allowing the Army to conduct deployment and distribution operations despite infrastructural challenges.

A key objective within Operation Pathways 24 is the execution of combined joint logistics over-the-shore (CJLOTS) operations as part of the Balikatan 24 exercise. CJLOTS is a crucial component in establishing and demonstrating the ability of the Army to project and sustain military power in environments where traditional

logistics channels are either compromised or unavailable. This exercise will focus on deploying and managing logistical resources over coastal and riverine environments, a vital skill in the island-dotted landscape of the Indo-Pacific. The training will test the Army’s capacity to establish supply chains in austere and potentially hostile settings, ensuring readiness for expeditionary warfare.

Valiant Shield 24, on the other hand, will spotlight the role of JPOTS in sustaining joint distribution operations under anti-access/area denial (A2AD) conditions. This training is critical in an era when adversaries increasingly employ strategies to hinder access to traditional logistics routes. JPOTS exercises will simulate scenarios where fuel and other vital supplies need to be transported over maritime domains, bypassing A2AD constraints. This will not only test the logistical ingenuity of the forces but also their ability to operate under potential threats.

Pathways 24 and Valiant Shield 24 are designed to rigorously prepare the Army for future challenges, particularly in a theater as complex and unpredictable as the Indo-Pacific. These OAI will enhance joint and combined operational capabilities, ensure seamless integration with joint and coalition forces, and refine the strategies needed to maintain logistical superiority in contested environments. The training objectives set in these exercises

reflect a proactive approach to adapting to the changing nature of warfare, where logistical agility and resilience are as crucial as combat prowess. The lessons and capabilities rehearsed in these exercises will be instrumental in shaping the future readiness of the Army, ensuring it remains a formidable force in maintaining regional stability and security.

Integration with Allies and Partners

In the realm of contested logistics, leveraging and coordinating with allies and partners is crucial for expanding the operational reach of combat forces. Leveraging acquisition and cross-servicing agreements (ACSAs) and mutual logistics support agreements (MLSAs) are vital in environments where traditional supply lines are disrupted or under threat — a scenario increasingly common in modern warfare.

Enabling the DOD to acquire or provide logistic support with partner nations and organizations, ACSAs become key tools in maintaining the momentum of operations under contested conditions. They allow for the rapid mobilization and exchange of essential resources such as fuel, munitions, and medical supplies, directly contributing to the sustainment and resilience of forces engaged in frontline operations.

Comparatively, MLSAs further augment this capability by facilitating the mutual exchange or sharing of logistics support,

ensuring combat forces have continuous access to necessary supplies and services. This mutual assistance is particularly effective in creating a network of forward-postured sustainment, essential for maintaining operational tempo in hostile or disrupted environments.

ACSAs and MLSAs are not merely logistical agreements but strategic enablers in contested logistics scenarios. By ensuring a steady flow of resources and support, these agreements extend the operational reach of combat forces, enabling them to sustain prolonged operations in challenging environments. This ability to maintain forward-postured sustainment is critical in modern military strategy, ensuring forces remain agile, resilient, and effective, even in the most demanding circumstances.

Diverse Employment of APS

APS and systems like JPOTS and JLOTS play pivotal roles in enhancing the Army’s operational readiness, particularly in scenarios where deployment speed and distribution capabilities are crucial amidst infrastructure challenges.

APS effectively shortens deployment response timelines by strategically positioning vital equipment and supplies close to potential areas of conflict. This forward positioning of resources is critical in rapidly escalating scenarios, as it allows U.S. and allied forces to bypass the time-consuming process of

long-distance transportation of equipment. By having essential materiel pre-positioned, the Army can swiftly respond to emerging threats, significantly accelerating deployment timelines and ensuring rapid force projection.

APS capability forms a comprehensive sustainment framework that enables the Army in the Pacific to maintain operational momentum under various contingencies, including rapid response and operations in contested or degraded environments. This integrated approach to logistics ensures the Army remains versatile, responsive, and capable of overcoming logistical challenges posed by adversaries in modern warfare. By continuing to incorporate these operations into the exercise framework of Operations Pathways in competition, the Army ensures its sustainers and logisticians are prepared to execute these critical sustainment tasks should competition transition to crisis and conflict.

Conclusion

Training the sustainment warfighting function as a component of Army theater rehearsals is an indispensable aspect of military preparedness, especially in the context of joint and theater operations. Customized training objectives for sustainment are not merely routine exercises; they are rehearsals for critical tasks that underpin the success of joint and theater operations. Diverse and challenging training scenarios,

encompassing the integration of C2 capabilities with allied forces and the practical application of systems like ACSA, MLSA, APS, JPOTS, and JLOTS, ensure sustainment units are well-prepared for the realities of contemporary warfare. Through these rehearsals, the Army continues to set the theater for future conflicts, ensuring it and its allies are not just prepared for the challenges of today but are also strategically positioned for the uncertainties of tomorrow.

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Feature Photo
Soldiers connect a pipeline to a pump station during Talisman Sabre 23 in Weipa, Australia, July 20, 2023. (Photo by Maj. Jonathon Daniell)



Security Force Assistance Brigades

Ways to Support Advisor Teams in Conflict

■ By Col. Aaron Cornett

The prioritization of support could be a significant friction point if and when partner force commodities on hand become limited or if there is a decision to be made about who gets support first.

Between 2017 and 2020, the Army set up six security force assistance brigades (SFABs) designed to advise, assist, and accompany Afghan, Iraqi, and Peshmerga security forces. The Army reorganized the SFABs in 2019 and aligned each of the five active duty SFABs with a combatant command (CCMD). Now, the SFABs give the CCMDs the persistent capability to train, advise, and assist during competition in their respective region. The SFABs also provide the CCMDs access, presence, and influence, consistently improving interoperability with allied and partner forces. More importantly, the SFABs provide the joint force with the capability to advise, support, liaise, and assist those same allied and partner forces in any theater when a crisis or conflict emerges. The latter was and has continued to be

tested during U.S. European Command and NATO's assure and deter operations in response to the Russian invasion of Ukraine. As the SFABs prepare to execute potential missions during crisis and conflict, the focus of SFAB training has shifted from competition to supporting allies and partners and integrating with U.S. forces during large-scale combat operations (LSCO). To validate SFAB advisor teams' abilities to accomplish this, SFABs have begun participating in combat training center (CTC) rotations at both the National Training Center (NTC) and the Joint Readiness Training Center (JRTC). There has also been considerable effort put toward updating doctrine, specifically Army Techniques Publication (ATP) 3-96.1, Security Force Assistance Brigade, which describes how an SFAB operates across the spectrum of conflict. The mission of the SFAB has also been codified in Field Manual 3-0, Operations, which states, "Advisor teams from the theater-aligned security force assistance brigade (SFAB) may embed alongside threatened partners, providing real-time tactical intelligence and access to U.S. capabilities."

Many questions remain about how an SFAB operates in LSCO while in a contested environment. One of those questions is how the SFAB teams will be supported in the contested environment. To address that question fully, one must first understand how the SFAB operates. An SFAB usually deploys to a specific theater as a task force comprising a command-and-control element and

multiple advisor teams. The type of advisor teams assigned to the task force depends on the mission, likely including not only maneuver advising teams but also fires, engineer, and logistics advising teams. In most cases, advisor teams are paired with allied or partner forces and are widely dispersed across the battlefield to meet the needs of the mission. That dispersion often means the advisor teams are far from other U.S. forces and somewhat more exposed to the enemy. The allied or partner force an advisor team is paired with could be from a battalion up through a corps headquarters. The specific level of advising depends on many things, including the type of operation and the partner's capability.

Conventional wisdom may lead one to believe an SFAB can support itself during LSCO in a contested environment. After all, SFABs were initially built under the same construct as an infantry brigade combat team and include a brigade support battalion (BSB) with maintenance and distribution capability. However, SFAB advisor teams are often co-located with a partner force and spread out across the battlefield, making that a challenging and highly unlikely configuration. In addition, the SFAB's limited distribution assets and relatively non-existent security platforms make providing internal support to advisor teams in a contested environment even more difficult. Nonetheless, recent CTC rotations have allowed SFABs to test support options. This article discusses how those options played out in two particular CTC rotations, the pros and cons, and potential solutions to the problem set going forward.

ATP 3-96.1 states, "The primary two functions of the SFAB BSB are coordinating sustainment support between the advisor teams and the theater support structure and providing advisor teams to develop the sustainment capability and capacity of the foreign security forces." The ATP goes on to say the BSB can provide "limited distribution operations, field-level maintenance, and enhanced Role 1 medical care." The reality is the SFAB BSB can do one or the other very well but struggles to



fulfill both roles simultaneously. Despite that challenge, there is no question it is the responsibility of the SFAB BSB, in conjunction with the task force S-4, to figure out how to support advisor teams in an LSCO environment regardless of the battalion's overall mission.

Sustainment of the SFAB is further complicated because of the SFAB's unique mission and the fact it is often likely to operate outside of a combatant commander's joint operations area. When that occurs, the Army sustainment infrastructure does not exist for the SFAB to tap into. ATP 3-96.1 addresses this situation and says when SFABs do not have access to the traditional Army sustainment systems, they "must coordinate sustainment support through their higher headquarters to access contracting support, host nation support, or support from the Defense Logistics Agency, embassy, or the ASCC (Army service component command) for their location."

In January 2023, the 2nd SFAB deployed a task force to participate in NTC 23-04. In this scenario, the 2nd SFAB advisor teams operated in an area where traditional Army sustainment systems did not exist. Because of that, it was decided the partner forces would support the teams. In addition, to streamline reporting and ensure the partner force provided the necessary support in a timely manner, the task force commander aligned a captain-led logistics advisor team (LAT) to the partner force support platoon. All advisor teams sent their logistics status report (LOGSTAT) to the task force S-4, who compiled the reports and sent a consolidated LOGSTAT to the LAT. The LAT then worked with the partner forces to plan and execute resupply operations across the battlefield.

By and large, the concept of having the partner forces support the advisor teams worked well. In addition to the partner forces' familiarity with the area of operations, the placement of the LAT with the partner force support platoon played a significant role in that success. The LAT was familiar with the advisor teams' needs, could communicate directly with the teams and the task force S-4, and brought additional expertise to the partner forces for planning and executing distribution operations.

Had the LAT not been aligned with the partner force support platoon, there could have been additional hurdles to overcome, such as understanding the teams' requirements, communicating and coordinating with the teams, and understanding how to properly plan, prepare, resource, and execute distribution operations. The placement of the LAT is a tactic, technique, and procedure (TTP) to emulate in the future.

The fact that a U.S. support platoon replicated the partner force support platoon also created an artificial sense of security regarding resupply operations. For one, there was no concern about a partner force having the types or amount of needed commodities on hand. The teams and the partner forces used the same fuel and ammunition, but that won't always happen. It's more likely a partner force would use different fuel, ammunition, and other supplies. In addition, there was never any concern about a partner force having to prioritize supporting the U.S. advisor teams versus their units. The prioritization of support could be a significant friction point if and when partner force commodities on hand become limited or if there is a decision to be made about who gets support first. All these potential scenarios need to be considered when choosing to use a partner force to support an advisor team in LSCO.

In July 2023, the 2nd SFAB deployed a task force to participate in JRTC 23-08.5. In this scenario, a U.S. unit provided support for advisor teams. All advisor teams sent their LOGSTAT to the task force S-4, who compiled the reports and sent them to the U.S. higher headquarters, to which the task force was assigned. The higher headquarters then tasked a subordinate U.S. sustainment unit to conduct the resupply operations. In this training environment, the resupply operations were conducted by a backside support element of the SFAB that was not part of the training scenario. This created some artificiality, but it still gave the SFAB an idea of what support by another U.S. unit would look like.

This concept of support worked fairly well. Once some initial reporting issues were resolved, the task force could accurately convey the needs of the advisor teams to its higher headquarters and request the needed resupply.

The support came from a U.S. unit familiar with the SFAB mission, utilizing the same type of commodities and operating on the same communications platforms, which helped immensely. The only drawback was that an SFAB element did the actual execution with no other customers, so there were no issues with priority of support or priority of supply. There would be challenges with either or both if a unit providing area support had to contend with other customer requirements, finite distribution platforms, and limited commodities.

Another point worth discussing is the distribution methods used at both NTC and JRTC. At NTC, the partner force support platoon conducted tailgate distribution, delivering supplies directly to the advisor teams at their respective locations across the battlefield. This was time and labor-intensive for the support platoon and took some detailed coordination between the LAT and the advisor teams to ensure the partner force knew where each team was located at any given time. Still, it made life much easier for the advisor teams, who didn't have to travel anywhere or worry about losing advisors to conduct link-up and resupply operations at another location. On the flip side, at JRTC, the U.S. unit used the supply point distribution method. This required all advisor teams to come to one location at a specific time and get their needed supplies. This method was more accessible on the U.S. unit and required much less coordination between the U.S. unit and advisor teams. Still, this method stressed the advisor teams much more, requiring teams to allocate time and personnel to travel to the supply point location to retrieve supplies. Advisor teams are already small, and taking multiple advisors away to conduct resupply operations could hurt advising operations and the team's security.

As the SFAB moves forward with additional CTC rotations and begins to plan for advising in real-world crises and conflicts, the support of advisor teams on the battlefield must remain a significant consideration. The SFAB should continue to stress the support to advisor teams and make it a specific training objective during CTC rotations to which task forces must give credence. The recent experiences at NTC and JRTC proved that support provided by either a partner force or U.S. unit

is feasible and acceptable. Both come with advantages and disadvantages, and the ultimate decision will likely come down to the specifics of the mission. Support provided by a U.S. unit is probably the preferred course of action if a choice exists simply because of similar commodities, similar communications platforms, and a shared understanding of TTPs. Although support provided by a partner force can work, the challenges created by potentially different commodities, different communications platforms, conflicting priorities, and different TTPs could create unnecessary challenges that affect the primary mission of the advisor teams. In addition, the method of distribution to advisor teams should be tailgate. This method may be more challenging and time-consuming for the executing unit, but it limits the disruption to advisor teams and allows them to remain engaged with their partners.

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Feature Photo
Top Left: Sgt. 1st Class Ronnie Lewellen, an advisor assigned to the 1st Security Forces Assistance Brigade, conducts jungle movement and transportation methods during the academics portion of Southern Vanguard 24 in Belem, Brazil, Nov. 3, 2023. (Photo by Spc. Joshua Taeckens)

Bottom Right: Green Berets from 7th Special Forces Group (Airborne) train and advise Soldiers assigned to 4/54 Security Force Assistant Brigade on small unit tactics and land navigation on Camp "Bull" Simons, Florida, Nov. 5, 2023. (Photo by Spc. Christopher Sanchez)

CONTESTED

LOGISTICS

AI, Optimization, and Rational Thought (A Mathematician's Lament)

■ By William T. Smith, Ph.D.

The U.S. military experienced logistics challenges with land-locked Afghanistan, but one of the last times it faced actively contested logistics was with the German submarine wolfpacks in World War II. Operations research and systems analysis (ORSA) was born out of this era, and it has been rumored that ORSA analysts knew where the wolfpacks would patrol before the submarine captains were given their orders. Today, many are turning toward quantitative science again in the hope of finding ways to mitigate potential challenges while providing supplies to warfighters across contested regions. This focus is indeed warranted. Since World War II, mathematics has been exploited to make huge strides toward maximizing profit in commercial logistic enterprises. Many leaders look to artificial intelligence and machine learning (AI/ML) to bring about the next wave of innovation.

However, merely copying successful commercial practices will leave supply chains vulnerable while wasting valuable resources chasing solutions before defining problems. It may go against conventional wisdom, but this article argues in favor of irrational, non-optimal, and unpredictable actions.

There has been an abundance of hope placed in the advancement of AI/ML, especially by those who are woefully unaware of how it works. In the simplest of terms, AI/ML needs decision-makers to optimize X by training the model using data from Y. This method of model creation can lead to driverless convoys and more effective preventative maintenance but can also fall short in addressing contested logistics. Where is the data from prior contested sustainment operations in similar conditions that can be used to train the model? One solution is creating synthetic data from simulations, but the AI/ML

output may amplify any bias in the simulation and produce fictitious data, also known as hallucinations. War, and by extension contested logistics, should be an outlier, and therefore AI/ML has minimal training data to provide insights on how to optimally get supplies from point A to point B through contested routes. So, how did they do it in World War II?

Traditionally, a logistics routing problem is modeled as a network with nodes being source, demand, or transit points, while the connecting arcs convey information about the cost or risk associated with moving between nodes. Edsger W. Dijkstra's algorithm is a well-known method that can quickly identify the path between any two nodes with the least cost. Again, this cost could be distance, money, or risk. Additional constraints, such as source nodes having limited supplies or demand nodes requiring minimal amounts, can be added. Optimization techniques such as linear, non-linear, and stochastic programming can help determine which supply routes carry the least cost within those constraints. Unfortunately, if the enemy has this information, they, too, can identify which routes the Army should take. In a contested environment, the Army would be best served by taking the less likely and potentially non-optimal route. Indeed, there must be a way to randomize the routes optimally. Enter game theory.

Game theory can potentially provide mixed strategies — a list

of probabilities associated with the routes instructing how to use them to minimize the chance of interdiction. The advisory would also have an optimal strategy that maximizes the enemy's chances of finding U.S. sustainment forces. For example, for each resupply, the Army would randomly pick one of three routes with the following likelihood: route 1, 50%; route 2, 25%; and route 3, 25%. This adds a layer of randomness to the strategy, but it assumes perfect information, and the adversary also knows the Army's intentions. Game theoretic models can account for imperfect information and more complexity, but there's the flaw of rationality in the end. Game theory relies on rational players playing for the strategies to be optimal. If the wolfpack commanders were more irrational, finding them would have been more challenging.

This is not to say technology and AI/ML cannot aid in contested logistics; it just means the Army needs to think differently than its commercial counterparts. Systems using advanced algorithms can pick up on deviations from normal expenditures much faster than humans and provide courses of action from the warfighter to the factory to aid decision-making. Instead of optimizing on cost, the Army optimizes its resiliency to disruptions within acceptable and quantifiable risk. It can also use AI/ML to assist it in being as random as possible in supply routes if the model is optimized to increase survivability and not efficiency. However, with all this in mind, Soldiers must still train

using traditional planning factors should the enemy's disruption affect the physical environment and the cyber network that underpins connectivity.

The Army should not rely on only commercial industry practices to help it prepare for contested logistics. Hurricane season may produce disrupted logistics, but hurricane season is fairly predictable, and the weather does not actively seek and pursue to prolong the disruption. Using AI/ML to overcome contested logistics will only be as successful as the quality of experience (data) fed into the model and the output we train it to achieve. It would be foolish to optimize supply lines with predictable routes and razor-thin margins. The Army needs to be as irrational as possible until its rational options are secured from enemy influence. There is a way forward where data, data science, and mathematics provide useful insight into navigating contested logistics, but it will take adopting a perspective far different from peacetime commercial operations.

Dr. William T. Smith has over 20 years of experience with operations research and logistics. He holds graduate degrees in both mathematics and industrial engineering. He currently teaches future operations research analysts at Army Sustainment University, Fort Gregg-Adams, Virginia.

PIER^{to} PEER

Using JLOTS to Deploy Forces During LSCO

■ By Maj. Joseph W. Tereniak

As the Army continues adjusting its sustainment capabilities toward succeeding in multidomain operations (MDO) environments against peer adversaries, significant challenges remain with the anticipated deployment of forces. Unlike the relative ease with which units deployed from the continental United States (CONUS) during the global war on terrorism, the idea of the U.S. homeland as a protected sanctuary is all but lost. The latest version of Field Manual 3-0, Operations, smartly adds an entire appendix on contested deployments, which details how adversaries will use multiple domains to delay, disrupt, and degrade the projection of forces during large-scale combat operations (LSCO). In confronting these realities, the Army must find innovative ways to navigate the sophisticated tranche of multidomain attacks and get combat forces out the door.

Threats to Sea Ports of Embarkation

Over the last few decades, the world has witnessed several high-profile and severely disruptive cyberspace attacks against maritime port infrastructure. While most of these attacks have been directed against commercial shipping activities, there is broad agreement these attacks will be used against military



surface moves during large-scale deployment. In LSCO, these attacks will only increase in frequency, scope, sophistication, and effect. As the organization charged with strategic mobility, U.S. Transportation Command lists force projection as a focus area on the organization's list of joint deployment and distribution enterprise challenges.

In recognition of the vulnerabilities in protecting critical infrastructure such as maritime ports, Presidential Policy Directive (PPD) 21: Critical Infrastructure Security and Resilience was published to enhance cooperation between federal departments with

the common interest of securing critical infrastructure. PPD 21 explicitly discusses how physical and cyberspace attacks threaten all 16 critical infrastructure sectors while promoting collaborative action to improve vigilance and mitigate impacts. The security of the Transportation Systems Sector and its maritime subsector is critical to U.S. force projection.

Speaking at the DEF CON hacker conference in August 2023, Jen Easterly, director of the U.S. Cybersecurity and Infrastructure Security Agency, offered candid remarks about the severity of threats the People's Republic of China posed

in using cyberspace attacks against U.S. critical infrastructure during conflict. This warning aligns with the Director of National Intelligence's 2023 Annual Threat Assessment of the U.S. Intelligence Community and drives home the gravity of how complex the deployment of forces will be during LSCO in the MDO environment.

JLOTS as a Potential Solution

Despite the steep challenges to U.S. force projection from CONUS, much of the current conversation and associated literature is focused on the deployment of forces arriving into theater. Admittingly, delivering troops and supplies into a dynamic

area of operations laden with anti-access and area denial capabilities, such as island chains in Southeast Asia, is a tremendously complex endeavor with no clear solutions. However, before that problem is confronted, troops must leave their home ports of embarkation. The importance of this initial problem is worth examining further and creatively exploring all potential solutions. One such solution may lie in an existing capability — joint logistics over-the-shore (JLOTS).

JLOTS is a critical joint capability that enables U.S. forces to enter a land area from sea despite insufficient port infrastructure. JLOTS can augment existing port capacity while allowing friendly forces to dictate access areas for the discharge of equipment. The focus of JLOTS under current doctrine pertains only to the movement of equipment to a destination inside a theater.

What if the U.S. military were to rethink the use of its JLOTS inventory to support force projection from CONUS? What if, instead of using JLOTS to discharge equipment on-shore in a deployed environment, it was used to deploy equipment off-shore from the U.S. mainland? This concept leverages an existing capability and provides the Army with four distinct advantages in the event of a rapid deployment during LSCO in the MDO environment:

- A controlled method for deploying forces generally free from the vulnerabilities

of civilian infrastructure dependencies.

- The removal of the predictability of deploying from a limited number of known locations.
- The ability to choose when and where a deployment originates in the event of a cyberspace attack or act of sabotage against a fixed port.
- The allowance of military planners to mitigate expected port congestion caused by affected commercial traffic.

While this alternate use proposal deviates from current JLOTS doctrine and practice, it may provide strategic and operational commanders with a flexible option for deploying forces if the use of fixed ports is denied. With nearly 95,000 miles of coastline and 25,000 miles of navigable waterways, finding supportable JLOTS sites to thwart attacks against known deployment locations may prove critical in a fight against an MDO-capable peer.

To validate this concept as an alternate or supplementary method for deploying forces from CONUS, the military may consider conducting a sea emergency deployment readiness exercise at an established JLOTS site. To make this exercise feasible, planners would have to first identify rail download sites in closer proximity to the JLOTS site, consider a ground convoy movement from the home station, establish and prepare marshaling areas at the designated beachhead, and work with state and local governments to

control traffic flows in and around the deployment site.

Conclusion

Projecting forces in MDO will be one of the military's most significant challenges. The 18 strategic ports listed as part of the National Port Readiness Network are almost guaranteed to have disruptive effects planned against them by peer adversaries. The idea a large-scale deployment from CONUS can occur from a relatively secure strategic support area is an assumption that prevents the U.S. from gaining and maintaining the initiative amid the chaos of an MDO conflict. Examining the feasibility of using JLOTS for force projection is an experiment worth considering.

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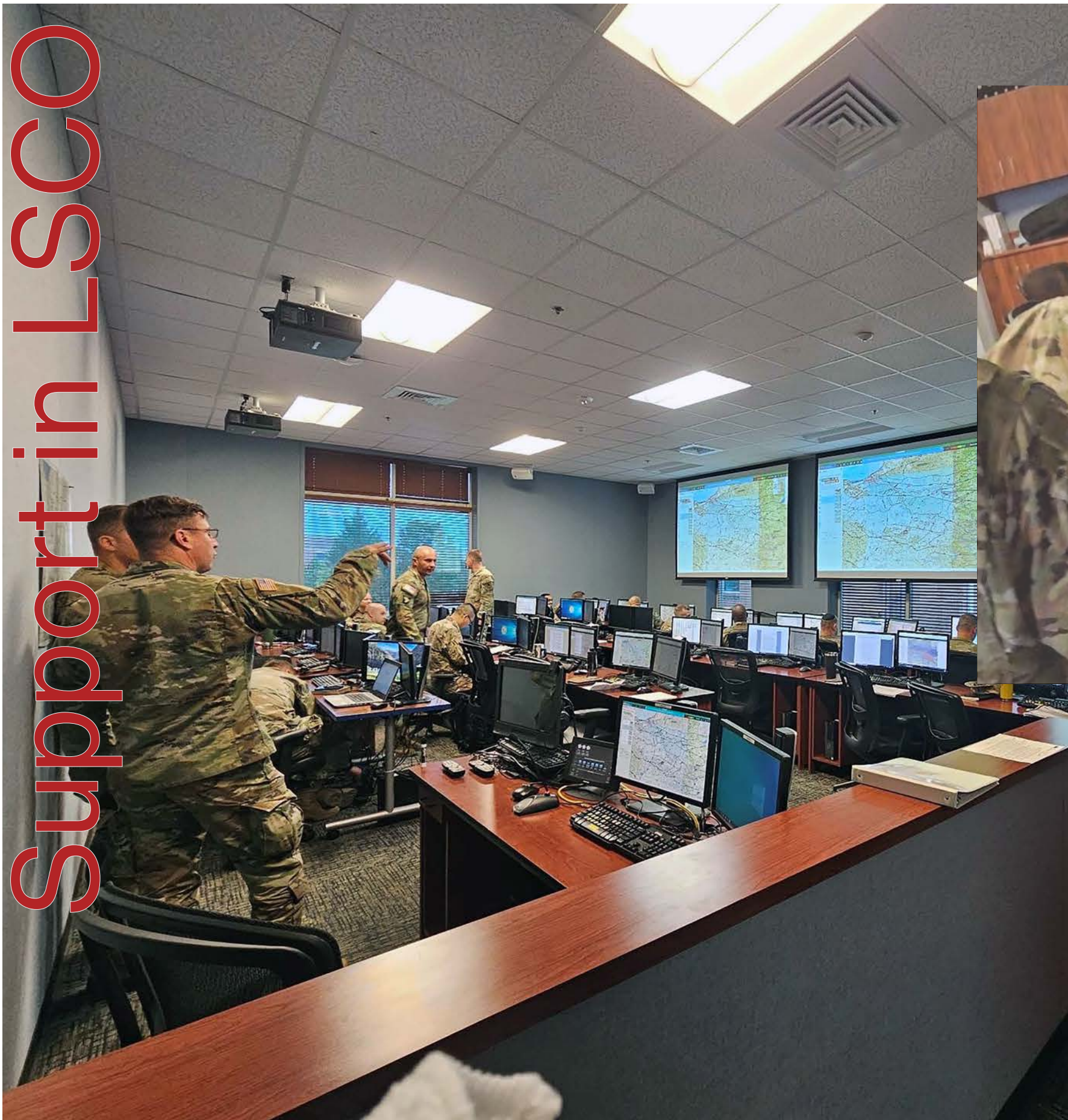
Feature Photo
Army mariners discharge vehicles on the beach via the causeway ferry as part of the Joint Logistics Over-the-Shore operation during Talisman Sabre 2023 in Bowen, Australia, July 31, 2023. (Photo by Maj. Jonathon Daniell)



Army mariners assigned to the 368th Seaport Operations Company and 331st Transportation Company construct a causeway adjacent to the Merchant Vessel Maj. Bernard F. Fisher off the coast of Bowen, Australia, July 29, 2023. (Photo by Sgt. Ashunteia' Smith)

Contested Religious

Support in LSCO



■ By Chaplain (Capt.) Andrew Schmitz



Field Manual (FM) 1-05, Religious Support, states, “Adaptability is the ability to shape conditions and respond effectively to a changing operational environment (OE) with appropriate, flexible, and timely actions.” The Army’s approach to providing religious support (RS) must adapt to the ever-changing OE. For the past 20 years, unit ministry teams (UMTs), each comprising one chaplain and one religious affairs specialist, have executed RS in semi-uncontested environments. Units conducted counterinsurgency (COIN) and advise, assist, and enable missions in Iraq and Afghanistan. These types of missions offered some advantages in the execution of sustainment operations. Such advantages are impossible during large-scale combat operations (LSCO) in multidomain operations (MDO). The Chaplain Corps must modernize RS so the Army can deter and, if necessary, defeat the next peer threat in a contested environment. The Chaplain Corps, nested in the sustainment warfighting function (WfF), is an important part of the Army’s actions across the range of military operations in each operational context of MDO, including competition, crisis, and armed conflict. What follows are proposed recommendations for RS revisions in each of the WfFs.

Movement and Maneuver

UMTs must provide RS at the right time and place. This means chaplains must go where the Soldiers are, dispersed as they may be in theater. The UMT quickly becomes a travel team during war. While the last two decades of OEs have been dynamic, they did not present a comprehensive multidomain threat. In addition to cyber superiority, the Army has enjoyed air superiority over enemy forces, almost entirely uncontested. UMTs mitigated obstacles they encountered along supply routes as they conducted battlefield circulation by simply hopping on a rotary wing aircraft during a scheduled ring route with little concern. This freedom of movement will no longer exist during an LSCO fight against a peer adversary. The enemy will make air travel comparably risky to travel on land. For RS revisions in the movement and maneuver WfF for the future contested OE, chaplains should:

- Plan and prepare a variety of tactical ground transportation options, including logistics packages

and medical evacuations. These tactical movements are necessary, even in a contested OE. They have deliberate force protection capabilities, such as gun truck escorts, which will benefit UMTs.

- Be on standby, like a quick reaction force (QRF), at a tactical assembly area, casualty collection point, or battalion aid station. The LSCO fight will take place over a large area of operations, and since UMTs will not be able to locate close to the forward line of troops, they can respond like a QRF on order from the combatant commander where they’re needed most.

Protection

U.S. forces are used to thinking about the protection WfF in an area of the world far away from the continental U.S. One of the new threats a peer enemy poses is a cyber vulnerability that transcends the range of battlefield weapons systems on a different continent. The enemy can use soft cyber strikes against the rear detachment and families in the continental U.S. Consider what would happen if the enemy targeted families through dox attacks, identity theft, and attacks on families’ financial institutions. This would distract and dramatically decrease the morale, focus, and readiness of Soldiers in the engagement areas. For RS revisions in the protection WfF for the future contested OE, chaplains should:

- Increase the billets for garrison RS to solidify the Army Installation Management Command’s ability to provide RS when the UMTs from a division (DIV) are forward deployed or attrited.
- Integrate Army garrison and command chaplains into National Guard and Reserve UMT training exercises and create battle drill standard operating procedures (SOPs) to provide RS when active-duty Army UMTs deploy.
- Create partnerships with civilian religious leaders in houses of worship around major installations to shore up potential RS shortfalls when UMTs are deployed or attrited.

Fires

A peer or near-peer adversary will have advanced fires capabilities that can outrange the company trains and

maneuver units of U.S. forces. This has not always been the case. The Chaplain Corps has three core competencies: nurturing the living, caring for the wounded, and honoring the fallen. Chaplains have performed the latter in predictable times and places, with a relatively reduced threat of enemy fires. After a unit sustains casualties, chaplains can conduct an entire memorial ceremony at a stationary forward operating base with full attendance. Contested LSCO OEs present risks to commands while executing memorial ceremonies. The forward line of troops during LSCO is dynamic. Commanders must consider how to conduct field-expedient memorial ceremonies when friendly forces are under an enduring threat of further attrition. For RS revisions in the fires WfF for the future contested OE, chaplains should:

- Truncate memorial ceremonies into field-expedient ceremonies known informally by several terms, including fallen tactical pauses or field expedient memorials. These short ceremonies take less than 10 minutes; a chaplain or another leader can conduct them. They comprise three components:
 - **Remember.** Friends and colleagues of the fallen Soldiers make brief eulogy statements.
 - **Reflect.** The chaplain speaks, sharing scripture, prayer, and thoughts for two to three minutes.
 - **Refocus.** The squad or platoon sergeant refocuses the attention of those present on the successful completion of the mission and the imperative of continued diligent care for one another.
- Train and certify leaders other than chaplains on hasty memorial ceremonies during pre-deployment training.
- Schedule a more robust memorial ceremony when the OE allows.

Intelligence

Chaplains are responsible for advising the commander on the religious dimensions of the OE. This can include accompanying key leader engagements (KLEs) with religious leaders. More recently, these KLEs looked like chaplains meeting with local sheiks and other religious leaders in the host countries of the operational area. However, the OE of the next LSCO fight may not be in enemy territory but in a NATO ally’s country. In the white

paper “Multinational Religious Support Interoperability (MRSI) in the European Theater,” Reverend Dr. J. Maddox Woodbery Jr. states MRSI is the new pacing effort for external advisement in RS. He writes that MRSI is the “cooperation between chaplaincies while providing/performing religious services and religious advisement across the range of military operations.” Per FM 3-0, Operations, to facilitate interoperability, U.S. forces must “continuously cultivate landpower networks with their allies and partners.” Therefore, chaplains add value to commanders’ RS programs by continuously cultivating multinational RS interoperability. Strategically cooperating with host nation chaplains achieves better results than if a U.S. chaplain treats advisement in Riga, Latvia, the same as Mosul, Iraq. Leveraging host nation chaplains culturally contextualizes RS, making it more effective. Incorporating these partnerships also comes into play when conducting noncombatant evacuation operations supporting internally displaced persons (IDPs). Two recent examples were Operation Allies Welcome and Operation Assure and Deter. The former supported evacuating Afghan citizens through countries like Germany to the U.S., and the latter partnered with Poland in support of potential refugees from the conflict in Ukraine. In both these operations, UMTs were on the front lines with innovative efforts to use chaplains’ intercultural emotional intelligence. For RS revisions in the intelligence WfF for the future contested OE, chaplains should:

- Integrate MRSI into initial entry training, professional military education, and garrison training for UMTs.
- Revise RS doctrine and training for IDPs. Create doctrine and SOPs that apply defense support to civil authorities to a foreign OE supporting noncombatant evacuation operations.

Sustainment

The Chaplain Corps executes RS nested in the sustainment WfF. UMTs enable the commander to maintain and project combat power, partly through honoring the fallen and advisement on matters of morals and morale. The number of casualties will increase in a contested OE. By way of preparation, the Chaplain Corps must refine how it integrates with mortuary affairs

operations. How will UMTs honor the fallen in a dignified manner with the quantity of human remains anticipated during LSCO? This question has merit not only because it is the right thing to do but also because the combat power contained in the American people's will to fight can be preserved. Suppose the American people see their sons' and daughters' remains handled in an undignified manner in the media or over social media. They would quickly lose the will to fight.

For RS revisions in the sustainment WfF for the future contested OE, chaplains should integrate mortuary affairs specialists in RS training in garrison, field training exercises, and combat training center rotations and deliberately rehearse the movement of human remains through each echelon from the company command post to the corps support area.

Command and Control

The Chaplain Corps needs to adapt its mission command both for the assignments process of chaplains during the current competition phase of MDO and the distribution of UMTs during the armed conflict stage of an LSCO fight. Centralizing decision-making works against survivability in a contested OE. Since MDO elevates the unit of action from brigade combat teams to DIVs and corps, the number of UMTs in the battlespace will significantly increase. The battlespace will be so large, dynamic, and distributed that maintaining the current model of keeping UMTs organic to battalions will not be feasible. Dynamic area coverage will add more value to the RS efforts in the fight. Finally, UMTs must nest their tactical communications with the Army's command and control (C2) networks. For RS revisions in the C2 WfF for the future contested OE, chaplains should:

- Leverage the Army's Assignment Interactive Module 2.0 talent marketplace for chaplain assignments to nest the assignments process with the rest of the Army, with significant input from DIV chaplains. Decisions are best made by leaders, such as DIV chaplains, who are closest to the situation and information. The Department of the Army Chief of Chaplains Personnel (DACH-PER) office will still need to deliberately manage

low-density faith group (Catholic, Buddhist, etc.) chaplains' assignments.

- Increase the table of distribution and allowances for DACH-PER to include Department of the Army Civilians and NCOs. This would adequately increase the bandwidth for the corps tasks to DACH-PER.
- Give DIV/corps chaplains C2 authority over subordinate UMTs in an LSCO fight to allocate RS assets when and where they're needed.
- Integrate and train on the UMT unit's C2 networks to inform decision-making at higher echelons.

Conclusion

The Chaplain Corps cannot afford to continue doing business as usual. The OE is changing, and the Army's sustainment enterprise is modernizing. The American warfighter deserves the First Amendment rights of freedom of religion, and this entitlement does not change when the Army changes from COIN to LSCO. Chaplains must train and prepare to provide RS for the Army of 2030 so Soldiers are sustained and spiritually ready to fight and win the nation's wars in a contested OE.

Chaplain (Capt.) Andrew Schmitz is the battalion chaplain for 1-320th Field Artillery Regiment, 2nd Brigade Combat Team, 101st Airborne Division (Air Assault), at Fort Campbell, Kentucky. He holds a Master of Divinity from the Southern Baptist Theological Seminary, Kentucky. He deployed in support of Operation Inherent Resolve with 1st Brigade Combat Team, 101st Airborne Division (Air Assault), to Mosul, Iraq. He recently served as the battalion chaplain for 18th Combat Sustainment Support Battalion in Grafenwoehr, Germany, where he provided religious support during Operation Allies Welcome and Operation Assure and Deter. His military training courses include the NATO and Partner Chaplain Operations Course, Security Force Assistance Course, Chaplain Assistant Advanced Individual Training, Airborne, and Air Assault.

Feature Photos

Left: Students at the Chaplain Captains Career Course train to integrate unit ministry teams across warfighting functions in preparation for multidomain operations on the Command Post Computing Environment at Fort Jackson, South Carolina, Aug. 21, 2023. (Photo by Chaplain (Capt.) Philip Tah)

Right: Students Chaplain (Capt.) Eunjun Jeong, and Chaplain (Capt.) Amy Smith at the Chaplain Captains Career Course learn how to create an interoperable common operating picture for religious support using the Command Post Computing Environment at Fort Jackson, South Carolina, Aug. 21, 2023. (Photo by Chaplain (Capt.) Nathanael Logan)

Agile, Resilient Sustainment NCOs

Ensuring Future Army Readiness

■ By Command Sgt. Maj. Jimmy Sellers

As wars always do, the conflict in Ukraine brought the importance and criticality of logistics and sustainment to the forefront. It also demonstrated — as has been the case throughout history — that the NCO Corps is what distinguishes and sets apart the U.S. Army. Sustainment NCOs provide a unique strategic advantage, providing the depth and breadth to execute sustainment operations at the tactical, operational, and strategic levels.

But we cannot rest on our laurels. Sustainment NCOs must be fully engaged in warfighting, continuous transformation, building ready combat formations, and strengthening the Profession of Arms. We must major in warfighting and minor in sustainment operations.



Command Sgt. Maj. Curtis Moss, the senior enlisted advisor to the commander of the 369th Sustainment Brigade, Task Force Hellfighter, leads the Charge of the Non-Commissioned Officer during an NCO induction ceremony held at Camp Buehring, Kuwait, Feb. 18, 2023. (Photo by Staff Sgt. Sebastian Rothwyn)

As a prerequisite to obtaining a degree in warfighting, sustainment NCOs must be brilliant at the basics. We must know our roles within each, refine our skills, and establish a sustainable path for the future force.

Developing an agile and resilient force for the future is a critical component to delivering ready combat formations. While the future fight will be more complex and challenging than ever, the knowledge, skills, behaviors, and

competencies for our sustainment NCOs will ensure our cohort is well-prepared to fulfill the requirements of an ever-changing landscape of future warfare across all domains.

For the Army sustainment enterprise, this means our NCOs must be experts in warfighting and sustainment operations. Talent management, education, and training, complemented by diverse creative and critical thinking, play pivotal roles in building and

continually enhancing the quality of elite NCOs.

Instruction acquired through professional military education (PME) is the key element to ensure NCOs remain relevant as they serve in various positions in their career. Sustainment NCOs must continually develop and possess a broad spectrum of experiences and competencies, enabling them to seamlessly adapt to and fulfill multiple roles as our Army

prepares for an unpredictable future. In response to this complex environment, we can use the example of the Army's rapid transition to a more data-centric approach. NCOs must be at the forefront of digital transformation. We must be able to comprehend and employ the power of data and information as a critical readiness asset to inform future sustainment actions reliably and rapidly. Innovative and modern courses like those offered at Army Sustainment University (ASU) are good places to start. ASU offers various levels of data-focused PME for NCOs throughout their career. Additionally, NCOs can leverage Training with Industry and other trade-based broadening opportunities for lifelong learning and credentialing. The education acquired through the PME system, complemented by diverse operational experiences across various military occupational specialties, plays a pivotal role in building and continually enhancing the pedigree of high-performing NCOs. Additionally, NCOs should lean into the traditional and non-traditional training received through field experience and rotations at combat training centers and contingency deployments to give them depth and breadth of knowledge on sustainment requirements and missions.

Finally, it is no secret we are in a war for talent. Effective talent management will not only assist us in attracting and retaining high-performing NCOs but will also help us win the war for talent.

The sustainment NCO initiatives lines of effort outlined in the sustainment NCO guide summarize supporting tasks needed to increase commitment and retention while improving performance across the sustainment NCO's career. Talent management is a collaborative effort that requires buy-in and involvement of all leadership levels. Sustainment NCOs must continually develop through avenues like PME and possess a broad spectrum of experiences and competencies, enabling them to adapt to and fill multiple roles.

I always tell NCOs to get comfortable with being uncomfortable. While sustainment NCOs can be placed in duty assignments that are tailored based on their knowledge, skills, and competencies, the willingness to serve in diverse operational positions within the sustainment enterprise can provide opportunities for NCOs to boost their confidence, tap into previously unexplored potential, and develop expertise that can serve them throughout their careers. These broadening assignments will serve NCOs well in the later part of their careers, helping them vie for positions within battalion, brigade, division, or corps-level staff, further contributing to their multifaceted skill set. Simply put, talent management is an element of warfighting we have to get right; it is non-negotiable. Placing NCOs with the right skills and competencies in the right positions will help us maintain a competitive advantage and ensure readiness for the future.

The sustainment NCO must be a highly adept Soldier with tactical and technical competencies and proficiencies acquired from PME, training, and effective talent management processes. These factors play pivotal roles in building and enhancing the abilities of sustainment NCOs needed for large-scale combat operations. As we adapt to an unpredictable future, the backbone of the Army will be called upon to ensure the preparedness of ready combat formations. As the Army's senior sustainer, Gen. Charles Hamilton, would say, sustainment is about warfighting, period.

Command Sgt. Maj. Jimmy Sellers currently serves as the Command Sergeant Major of Army Materiel Command. He graduated from all levels of the Noncommissioned Officer Professional Development System, culminating with the Nominative Leaders Course. He has a master's degree in business management from Excelsior University, New York. He is also a graduate of the Force Management Course, Senior Enlisted Joint Professional Military Education Course, and Legal Orientation Course.

Feature Photo
Soldiers assigned to the 3rd Division Sustainment Brigade, 3rd Infantry Division, sit attentively during the brigade's Noncommissioned Officer induction ceremony on Fort Stewart, Georgia, April 13, 2023. (Photo by Spc. Elsi Delgado)



CONTESTED LOGISTICS ENVIRONMENT DEFINED

■ By Maj. Jon Michael King

As of this writing, the Army and DOD have yet to codify the terms contested logistics and contested logistics environment in doctrine. The military must define these terms to create a shared understanding and provide valuable constructs to assist military professionals in understanding where they exist within the competition continuum. Common terms allow U.S. forces to communicate within the profession easily. Moreover, senior military leaders can more easily convey these pressing concepts, which have operational and strategic implications for national security, U.S. citizens, and federal government members. Before establishing the terms in doctrine like Field Manual (FM) 1-02.1, Operational Terms, the U.S. military must evaluate how sustainment professionals currently employ these concepts. Military doctrine writers can approach the task by considering the most extreme ends of the definition and include nuanced perspectives before refining the terms to fit within current operating concepts.

On one end of the spectrum, bodies of work posit threats to supply chains, constrained resources, and austere milieu typify the contested logistics environment. This concept centers the contested logistics environment on non-ideal circumstances. Generally, authors only articulate and focus on the challenges and complexities of contested logistics. However, this method of concentrating on conditions generates two problems. Foremost, it is indistinguishable from most forms of logistics operations.

Additionally, the method does not express the root cause of what makes the environment contested. The U.S. military should demarcate the definition from other terms and identify not just conditions but also the causes of the contested logistics environment.

For further elaboration, these non-ideal conditions stated within the definition can be a byproduct of anything within the operating environment and thus do not assist in differentiating the term from logistics. One could easily analyze multiple variables to identify the virtually limitless conditions hindering logistics. For instance, one could include uncontrollable effects such as adverse weather or relatively unchanging features to the physical environment like mountains, rivers, and other restrictive terrain. Professionals employing this terminology account for infrastructure and economic factors like poor road networks, short runways at airports, inadequate rail yards, and limited commercial line haul distribution capacity due to a struggling economy. Each facet poses challenges and threats to a robust and functioning supply chain necessary to sustain a fight in a multidomain large-scale combat operations environment.

However, hardship, challenges, and complexity are insufficient to distinguish contested logistics from any other form. All supply chains must overcome friction and non-ideal circumstances. Doctrine must set the term apart. If professionals define contested logistics as operating under

complex and challenging conditions or within austere environments, the definition is too broad, vague, and all-encompassing. For the doctrine to ascribe the qualifier of contested to logistics operations, it must include another entity within the system to create a contest: a competitor. However, this addition is only partially beneficial because most markets have competitors. Hence, doctrine must provide not only the cause of a contested logistics environment (a competitor/adversary) but also what distinguishes a military adversary from a marketplace competitor. Doctrine can accomplish this task of delineation by describing adversarial effects, intent, or purpose.

In all marketplaces, competitors and adversaries seek to accomplish similar goals: gain and maintain a relative advantage. However, the mechanisms and methods for achieving these goals are different and noteworthy. Both groups seek this comparative advantage by posturing capabilities and resources and denying other contestants within the environment from gaining an advantage. Per FM 1-02.1, to deny is “to hinder or prevent the enemy from using terrain, space, personnel, supplies, or facilities.” Marketplace competitors and military adversaries employ techniques in various ways to accomplish this task, like renting premium land rights, purchasing required commodities, or lobbying governments to establish laws advantageous for themselves while hampering competitors. Military adversaries have other means available than simply denial techniques. Adversaries may also seek

to disrupt through the integration of direct and indirect fires, terrain, and obstacles to upset formations or tempo, interrupt timetables, or cause enemy forces to commit prematurely. Additionally, an adversary can seek to destroy, rendering a force or asset incapable of achieving its objectives, something marketplace competitors may wish they had at their disposal, but an activity in which they cannot lawfully participate. These last two adversarial methods, disrupt and destroy, are what most military professionals envision when thinking of the contested logistics environment and formulate the other frequently described concept for the term.

The other contested logistics environment notion is that contested logistics occur during the conflict phase, when logistics nodes and lines of communication are targeted, generally with lethal effects. A relevant reference point for the DOD is 10 U.S. Code § 2926 - Operational energy, which describes the contested logistics environment as an “environment in which the armed forces engage in conflict with an adversary that presents challenges in all domains and directly targets logistics operations, facilities, and activities in the United States, abroad, or in transit from one location to the other.” This definition is helpful but perhaps too restrictive for the military. The term’s rendition can potentially focus professionals only on the conflict phase of the operation. The interpretation suffers from the opposite effect than the former version. Instead of being indistinguishable and so broad to the

point of being useless, this definition is overly constraining to the point of stunting creative understanding of how adversaries attempt to hinder U.S. logistics operations before reaching the conflict phase of operations.

As illustrated in FM 3-0, Operations, adversaries seek to create a contested logistics environment not only in conflict but also in the competition continuum’s other broad categories. U.S. adversaries are active in the competition and crisis categories to set conditions for success in future operations, deny U.S. access, and create multiple dilemmas for U.S. military operations. Adversaries may seek to deny U.S. forces access to a port of debarkation by securing exclusive usage rights during competition before conflict occurs. Likewise, an adversary may seek opportunities during crises, disrupting U.S. sustainment networks through an electronic warfare attack during a non-combatant evacuation operation. Hence, U.S. forces must contend with the contested logistics environment throughout the military operations depicted in doctrine. Doctrine must account for these adversarial actions in each competition continuum category.

One of the more nuanced adaptations sustainment professionals employ when discussing the contested logistics environment centers on ally and partner force actions. This version of the concept asserts primary elements of contested logistics are allies and partners competing for the same resources as U.S. forces. While it is true U.S. allies and partners are

expected to compete for the same resources (rail cars, commercial linehaul assets, subsistence commodities, etc.), and this competition may have a debilitating impact on U.S. forces’ ability to provide uninterrupted logistics, these factors do not make an environment contested ipso facto. This argument is akin to stating because other drivers are on the road competing for the same space, they create a contested environment in which others must operate. The reality is this is the status quo for all markets. Entities within the market almost always compete for the same resources if the resources are limited and desirable. Once again, this understanding is so broad that using ally and partner force competition as a qualifying condition makes the concept useless.

Is it essential for U.S. forces to consider the actions of allies and partners and the consequences of those actions? Certainly. Along with Army doctrine, Joint Publication (JP) 5-0, Joint Planning, describes the necessity for unified action and unity of effort to reduce the likelihood the military units, the federal government, and coalition nations will create new dilemmas based on uncoordinated decisions or desynchronized plans. However, the U.S. military should abstain from including these entities, all of which share similar objectives, as precipitating or prerequisite conditions to the concept of a contested logistics environment. These groups, along with their plans and decisions, are considerations but not the forces that create a contested logistics environment.

How can the military define contested logistics and the contested logistics environment? This article establishes the specific criteria the doctrinal definitions need to be valuable: the terms must be distinguishable from other forms of logistics; they must articulate the root cause of the conditions, namely an adversary; they must differentiate an adversary from a competitor; and they must be broad enough to consider adversary actions across the competition continuum and in multiple domains. The U.S. Code provides the U.S. military with a helpful starting point for a doctrinal definition. However, doctrine must expand the description to meet the established criteria.

The U.S. military can define the contested logistics environment as “the environment in which an adversary or competitor intentionally engages in activities or generates conditions, across any domain, to deny, disrupt, destroy, or defeat friendly force logistics operations, facilities, and activities.”

Therefore, the U.S. military can define contested logistics as “logistics that occur under conditions wherein an adversary or competitor deliberately seeks or has sought to deny, disrupt, destroy, or defeat friendly force logistics operations, facilities, and activities across any of the multiple domains.”

These proposed definitions meet the established criteria and provide value to the force. They determine conditions that differentiate the

contested environment from the typical, though still challenging, logistics operating environment. These definitional conditions, foremost the activities of adversaries, constrain it enough to distinguish it from almost all other logistics operations, specifically those in the civilian sector. Additionally, FM 1-02.1’s definition of the doctrinal term defeat, “to render a force incapable of achieving its objectives,” provides a catch-all method to explain multidomain effects, such as cyber, more easily. The proposed explanations are also valuable because they are broad enough to include adversary activities and conditions across the competition continuum without outright stating those categories.

Military logisticians may still need to refine these definitions before admission into doctrine. For one, the terms ascribe adversary intentions, and intention is tough to prove. Also, the adversary actions of disrupt and destroy are tactical tasks, including direct and indirect fires. Adversaries may refrain from resorting to fires to create a contested logistics environment. Therefore, the military may eschew these terms and consider other options like older terms of harass/harassment, which do not always include fires. Older joint doctrine, like JP 1-02, Department of Defense Dictionary of Military and Associated Terms, defined harassment as actions with the primary objective to “disrupt the activities of a unit, installation, or ship, rather than to inflict serious casualties or damage.” The U.S. military should refine the proposed terminology to

not only cover the broad range of adversarial actions but also to account for likely adversarial actions.

The article proposes definitions not to close the book on the subject but to provide a starting point from which the Army and joint force can develop doctrine. Sustainment professionals, warfighters, and policymakers require a common and shared understanding of logistics within a contested environment. The aim is to distinguish contested logistics activities from those of the civilian sector and military operations without an active adversary seeking to deny, disrupt, destroy, or defeat U.S. sustainment operations. Moreover, the goal is to provide enough flexibility for leaders to anticipate and account for adversary actions during all stages of the competition continuum, within all domains, and at all echelons of warfare.

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Feature Photo
Army Reserve Soldiers assigned to South Carolina's 414th Transportation Company, currently deployed as part of the 3rd Division Sustainment Brigade's Task Force Provider, depart a field logistics base for combat convoy training in Karliki, Poland, on Dec. 28, 2023. (Photo by Sgt. 1st Class Jason Hull)

Keys to Contested Logistics in the Indo-Pacific

Access, Presence, Posture, and Interoperability

■ *By Maj. Tanya Leonard*



Contested logistics is gaining traction across the DOD, specifically in the Indo-Pacific theater, as the threat of conflict with strategic competitors seems likely in the foreseeable future. Due to its geography and contested environment, the Indo-Pacific theater presents one of the most complex problem sets for the joint force and its unified action partners. The theater is home to more than half of the world's population and covers half the earth's surface, comprising archipelagos, oceans, and seas. Near-peer competitors like China and Russia reside in the region, which makes the Indo-Pacific the priority theater for the DOD.

Leaders and organizations across the DOD are focused on the Indo-Pacific and working to address the challenges posed by contested logistics. Secretary of the Army Christine Wormuth addressed the logistics and sustainment challenges in the Indo-Pacific theater at the 2022 Association of the United States Army conference. Wormuth tasked the joint logistics enterprise (JLEnt) and commercial industry with capitalizing on emerging technologies to enhance logistics capabilities across the region. Wormuth also tasked Army Material Command with leading efforts at the strategic and operational levels. In addition, Army Futures Command was tasked with establishing a cross-functional team to focus on contested logistics. As near-peer competitors continue to expand military capabilities and regional influence, mitigating the challenges of contested logistics will determine the success of future operations in the Indo-Pacific. Addressing contested logistics increases military readiness, enables strategic advantage, and provides operational flexibility during large-scale multidomain operations. Operations and logistics are intrinsically linked.

Contested logistics is not a new phenomenon; logistics has always been contested. However, growing technological advancements continue to create dilemmas in executing logistics operations globally. Innovations like artificial intelligence, autonomy, and machine learning are changing logistics operations. In the Indo-Pacific region, logistics operations will be challenged by the proliferation of advanced anti-access/area-denial capabilities, increasing cyber threats, disrupted supply chains, and

constrained resources. Addressing and mitigating the challenges posed by contested logistics in the region is a joint multinational effort. This challenge will demand the unified action of the JLEnt, joint force, allies and partners, and host nations. A conflict in the Indo-Pacific region will call for logistics to be delivered at speed and scale regardless of the contested environment. Contested logistics in the Indo-Pacific must be addressed using a whole-of-government approach focused on partnership, presence, posture, and interoperability.

Access, Presence, and Posture

Contested logistics in the Indo-Pacific requires partnerships that enable access, presence, and posture throughout the theater. The Indo-Pacific Strategy of 2022 calls for increased partner capacity within and beyond the region. The U.S. has longstanding relationships with countries like Japan, the Republic of Korea, Australia, the Philippines, and Thailand. As a result, the joint force has access, presence, and posture in each of these countries. There are 40 countries within the Indo-Pacific, and diplomacy must continue across the region to set conditions for competition, crisis, and conflict. Within the region, the State Department is the lead for diplomatic efforts, including diplomatic engagements, economic development, security cooperation, and people-to-people exchanges. Building partner capacity throughout the region is vital to countering contested logistics and increasing the logistic capabilities of joint multinational forces. However, country access is first needed to build partner capacity within the region.

Access

The first step in addressing contested logistics in the Indo-Pacific region is gaining access during competition. Joint force access is needed across the region to build partner capacity, mitigate the tyranny of distance, establish sustainment posture, and enable a distributed sustainment network. Country access throughout the region facilitates the establishment of logistics nodes. These logistics nodes enable multidomain joint force operations' operational reach and prolonged endurance. Logistics nodes can only be established upon the approval of host nation country access, achieved through host nation agreements established through the State

Department. Three agreements that enable access, enhance interoperability, and streamline logistics support during military operations include:

- Mutual Logistics Support Agreement (MLSA)
- Status of Forces Agreement (SOFA)
- Acquisition and Cross-Servicing Agreement (ACSA)

An MLSA enables mutual logistic support, supplies, and services during military operations. A SOFA establishes the legal status and rights of military personnel deployed in a host country and addresses logistics. Finally, an ACSA enables the exchange of goods and services during military operations and exercises. It is important to note each agreement is unique and increases joint multinational logistics capabilities within the region. Access across the region is essential to addressing contested logistics in the Indo-Pacific. Initial access enables presence and posture across the theater.

Presence

Presence within the Indo-Pacific region prepares joint multinational forces to operate in a contested logistics environment. Joint force presence throughout theater is a deterrent effect that demonstrates joint readiness. Persistent presence in the region through campaigns like Operation Pathways enables human and procedural sustainment interoperability among the joint force, allies and partners, and host nations. Rehearsing joint multinational sustainment operations through annual and bi-annual exercises sets conditions for crisis and conflict. Furthermore, executing these exercises provides opportunities for the JLEnt to execute joint planning and

rehearse concepts to counter contested logistics through experimentation. Most importantly, joint force presence within the region facilitates future posture initiatives, which is critical to setting the theater.

Posture

Posture is key in addressing the challenges associated with contested logistics in the Indo-Pacific. Pre-positioning supplies and equipment during competition reduces the demand required to maintain supply lines over long distances, reduces response time, and increases the efficiency of logistics operations during crises and conflicts. In addition, pre-positioned stocks serve as a deterrent effect, illustrating joint readiness to potential adversaries within the region. Posture initiatives like the forward positioning of pre-positioned stocks enable decentralized logistics through a distributed sustainment network. The benefits of pre-positioning logistics in the Indo-Pacific to counter a future contested logistics environment outweigh the risks. However, every posture decision must be assessed due to the possible escalation of tensions, perception of threat,

and fiscal requirements.

Technical Interoperability

Sustaining conflict in a contested logistics environment requires interoperability among allies and partners, host nations, and the joint force. Interoperability is required to strengthen relationships with regional partners and execute joint multinational exercises. Interoperability is not easy to achieve; it occurs over time and is needed in multiple domains, including the technical, human, and procedural domains. As mentioned previously, human and

procedural interoperability is achieved through security cooperation activities and joint multinational exercises over time. The importance of technical interoperability is often overshadowed by the need for human interoperability. However, technical interoperability is an important aspect of logistics operations in a contested environment.

Logistics is a data-centric operation involving the processing of data into information. This data is later used to make strategic and operational decisions. Having the right data at the right time enables informed decision-making, provides real-time supply chain visibility, and increases the efficiency of logistics operations. In a recent issue of Army Sustainment, Gen. Charles R. Hamilton, commanding general of Army Materiel Command, wrote, “Data-enabled decisions will decide future battles.” Technical interoperability enables information sharing and data exchange in a contested logistics environment. As technology advances, the importance of data superiority continues to increase within the JLEnt. The Army has recently advanced its predictive logistics initiatives, leveraging artificial intelligence and predictive analytics to optimize logistics operations. Despite investments in emerging technologies to modernize and improve logistics operations, interoperability remains challenging.

During large-scale multidomain operations, technical interoperability is an important element in the ability to outpace adversaries. Data is only as good as the network and systems it is transmitted through. The current sustainment network is unclassified and vulnerable to cyber threats that could result in the targeting and disruption of logistics operations. Furthermore, the current unclassified sustainment network does not enable interoperability among the joint force, allies and partners, host nations, and unified action partners. The Army sustainment enterprise continues efforts to address interoperability challenges with initiatives like Project Convergence and Advana. Project Convergence began in 2020 to initially evaluate modernization efforts, and its scope and scale continue to expand with joint force and coalition partner participation. Project Convergence evaluates technologies across warfighting functions, focusing on advancing joint and multinational interoperability. Advana is a

data analytics platform for data interoperability used by national agencies during the COVID-19 crisis. Technical interoperability is the linchpin of logistics operations in a contested environment. The joint force must continue to explore and develop initiatives like Project Convergence and Advana to ensure joint multinational technical interoperability in future contested environments like the Indo-Pacific.

Conclusion

The Indo-Pacific may be the most contested region in the world. However, the JLEnt can set conditions to operate in a contested logistics environment. A whole-of-government approach is needed to gain access to countries across the region to build partner capacity. The joint force must continue exploring ways to work alongside allies and partners to develop human and procedural interoperability through campaigns like Operation Pathways. The joint force must make calculated decisions on posture initiatives, ensuring conditions are set for potential conflict and maintaining a deterrent effect. Lastly, the Army sustainment enterprise, JLEnt, and industry partners must continue efforts to achieve technical interoperability on a classified sustainment network. Access, presence, posture, and interoperability must remain priorities of the joint force, allies and partners, and DOD to set conditions for the contested Indo-Pacific environment.

Maj. Tanya Leonard serves as a joint logistics planner in Special Operations Command Pacific. She previously served as the executive officer for Maj. Gen. Jered P. Helwig and as the commander's initiative group officer for Maj. Gen. David Wilson. She was commissioned as a lieutenant in the Ordnance Corps. She holds a master's degree in general administration from Central Michigan University.

Feature Photo
Soldiers observe the emplacement of a pump during Talisman Sabre 23 in Weipa, Australia, July 20, 2023. (Photo by Maj. Jonathon Daniell)



FACING Fatality

Mortuary Affairs in LSCO

■ By Capt. Brianna E. Griffin

As the DOD begins analyzing the many challenges associated with the shift in focus from counterinsurgency (COIN) operations to large-scale combat operations (LSCO), an often-understated area of sustainment, mortuary affairs (MA), must be addressed. A projected increase in fatalities during LSCO emphasizes the need for a more comprehensive understanding of the MA program and a faster, more efficient response in managing fatalities. Based on the current structure of the MA program, processing limitations and redundancies, equipment capacity constraints, and wavering public opinion could collectively undermine its effectiveness in a near-peer contested environment.

The Army MA program, recognized as the most established MA program of all the services,



consists of seven units. The 54th Quartermaster (QM) Company (Co.) is the only MA unit within the active-duty component, and it is located at Fort Gregg-Adams, Virginia. Its sister MA company, the 111th QM Co., recently deactivated and reassigned its personnel to the 54th QM Co. The remaining six MA units are within the Army Reserve component, located in Costa Mesa, California (387th QM Co.); Dover, Delaware (673rd QM

Co.); Honolulu, Hawaii (962nd QM Co.); Staten Island, New York (1019th QM Co.); Aguadilla, Puerto Rico (311th QM Co.); and Mayaguez, Puerto Rico (246th QM Co.). Notably, the 962nd QM Co. also has personnel dispersed to Joint Base Elmendorf-Richardson, Alaska; Barrigada, Guam; and Pago, Pago, American Samoa.

During peacetime, MA units support missions both within and

outside the continental U.S. Missions include responding to mass fatality incidents, conducting training exercises, and gaining invaluable experience serving with the Defense POW/MIA Accounting Agency, the Dover Port Mortuary, or the Joint Personal Effects Depot at Dover Air Force Base in Delaware.

During periods of conflict, the primary mission of MA units is to establish and operate facilities in the designated theater of operations to ensure the efficient reception, processing, and evacuation of human remains and personal effects. The three types of MA facilities are mortuary affairs collection points (MACPs), the theater mortuary evacuation point (TMEP), and the theater personal effects depot (TPED), all of which are managed concurrently by MA personnel to support a three-division corps. A minimum of six MA personnel is required for each MACP, while the TMEP and TPED require five collection teams or 28 to 30 MA personnel. In LSCO, the allocation of MA facilities consists of a forward MACP per brigade support area (BSA), a main MACP at each division support area (DSA), and a TMEP and TPED at the joint security area. The expected processing throughput is 20 human remains per MACP and 250 human remains at the TMEP within a 24-hour timeframe.

Currently, estimated fatality rates per day in LSCO exceed throughput and are similar to those observed during World War II, at a baseline

of 2.6 percent. This translates to roughly 120 fatalities within each brigade per day. Given the significant incongruities between the processing throughput at MACPs and the anticipated fatality rate, MA personnel will be immediately overwhelmed in LSCO.

The standard solution to alleviate MA facilities in LSCO is integrating MA personnel from sister services into forward MACPs. However, their ability to augment forward MACPs is limited. According to Army Techniques Publication 4-46, Multi-Service Tactics, Techniques, and Procedures for Mortuary Affairs in Theaters of Operations, Air Force MA personnel can only provide general support at main MACPs, and Navy MA personnel only specialize in operating mortuaries. Fortunately, Marine Corps MA personnel can operate MACPs, but their unit is within the Reserve component, requiring timely mobilization to be effective. If hastily integrated, it could result in inconsistent handling of human remains as no authoritative doctrine mandating standardization across services exists. Sister service MA personnel must undergo comprehensive standardization training with the Army MA personnel to ensure effective integration in LSCO.

A potential solution to alleviate MA facilities in LSCO is to relocate the multiple forward MACPs from each BSA and consolidate them at the DSA. The current flow for evacuating human remains begins once the losing unit recovers them

from the battlefield and transports them to the nearest forward MACP for processing. After processing is complete at the forward MACP, the human remains are sent to the main MACP at the DSA for further processing. Next, the TMEP receives the human remains for quality control review and final evacuation out of theater. Human remains may be stored in and out of refrigeration throughout this process and experience repeated processing. Relocating and consolidating the forward MACPs at the DSA can eliminate redundancy at each echelon. It could also improve the efficiency of processing during highly kinetic operations with all MA personnel working together at the DSA toward a shared objective. On the other hand, having multiple forward MACPs in LSCO could become unmanageable for a team of six as each MACP receives varying numbers of human remains depending on their assigned support forward.

Relocating the forward MACPs to the DSA would facilitate more direct personnel management to ensure workloads are not unevenly distributed. Already familiar with each MA Soldier's needs, relocation to the DSA would give MA platoon leadership command and control of their forces while serving on the division support brigade support operations staff. The forward MACP's relocation to the DSA would also give the brigade support battalion MA staff at the BSA the bandwidth to focus more on streamlining immediate recovery operations amongst their unit



The mortuary affairs team from the 673rd Quartermaster Company demonstrates the ceremonial hand-off of a casket during Juniper Caracal 23-2, at a base in Israel on May 31, 2023. (Photo by Sgt. Ryan Scribner)

recovery teams and coordinating the timely evacuation of human remains to the DSA for processing.

Although the relocation of forward MACPs may increase demands on the DSA, it would not negatively affect the current evacuation flow, quality control and assurance protocols at the TMEP, delay notifying the next of kin, or impose additional obligations on maneuver units.

Alongside the need for a more efficient approach to reducing those redundancies in processing an influx of human remains, there

is a need for equipment that can effectively preserve them in LSCO. Each collection team or MACP is augmented with a Mobile Integrated Remains Collection System (MIRCS) to support the receipt, processing, and preservation of human remains at the MACP. Fielded to MA units during COIN operations, the MIRCS is an expandable container that can accommodate both an administrative and processing team and provides refrigerated storage for up to 15 processed human remains. Each MIRCS includes four temporary holding shelters that can each

accommodate six human remains, but lack refrigeration capability. Only able to store or preserve a combined total of 39 human remains, neither the storage capacity of the MIRCS nor its temporary holding shelters will be effective for preservation in LSCO.

A commonly proposed solution to preserve an influx of human remains is to contract refrigerated storage containers. Though a single 53-foot refrigerated truck or container can preserve up to 100 human remains, fatality management in LSCO may require a full complement. The

resource requirement of multiple refrigerated trucks or containers may not be reasonable to attach to a forward MACP when considering displacement and other crucial areas of sustainment that may also require additional refrigeration assets (food and medical supplies). However, if forward MACPs were relocated to the DSA as recommended, the need to displace rapidly may not occur as often, and refrigerated trucks could act as reinforcing support to the MIRCS.

If contracting additional refrigerated equipment to supplement the MIRCS is not feasible, temporary interment or burial must be considered in LSCO. Though only the respective geographical combatant commander can authorize temporary interment, leaders should still anticipate this requirement during LSCO and plan for multiple temporary interment sites through their joint MA officer. Temporary interment is an often disregarded but practical solution during high-intensity conflicts when resources used for human remains evacuation are unavailable or prioritized to support the living.

Despite the challenges a new operational environment poses to MA personnel and equipment, it is imperative to maintain a positive public perception throughout. While delays in repatriation or temporary interment may be unsettling to the public, fatality management is a complex and sensitive process that requires understanding and acceptance. Leaders can effectively

preserve the public's understanding and acceptance by minimizing the impact of mass fatality incidents on the fallen and their families.

Commanders can indirectly impact public opinion by promptly designating unit recovery teams and conducting semi-annual training facilitated by MA personnel. Unit recovery teams are responsible for evacuating the fallen to the nearest MACP, fulfilling a vital role on behalf of commanders and grieving families. Training unit recovery teams to conduct immediate recovery procedures in a standardized and compassionate manner demonstrates an unwavering commitment to professionalism beyond mere fulfillment of duties. The diligent efforts of trained unit recovery teams ultimately allow for the eventual return of the fallen to their families, providing solace, closure, and due reverence for the ultimate sacrifice made by the service member.

Commanders must also ensure MA personnel are mentally trained and resilient to fulfill their duties to the fallen and their families. Considering the heightened psychological, physical, and emotional challenges associated with their profession, MA personnel must have consistent access to behavioral health, chaplain support, and sufficient time off for rest and meals. Prioritizing their well-being in a high operational tempo may require additional MA personnel, but it is crucial as the performance and well-being of MA personnel directly influence the public's trust in their ability to handle

catastrophic losses. Recognizing and valuing the efforts of MA personnel in this manner also extend to their families and communities, ultimately helping to foster positive public opinion.

Considering the persistent threat of near-peer conflict, it is imperative to promptly address the potential challenges that could confront the MA program in LSCO. These challenges include managing high fatality rates, inadequate equipment, and, ultimately, public perception. By implementing solutions at all levels to improve personnel management and productivity, procurement of adequate storage equipment, and public support and confidence, the MA program will remain steadfast in its commitment to honor the fallen with utmost reverence, dignity, and respect, even in contested environments.

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Editor Note: This article was a selection from the Army Sustainment University President's Writing Competition.

Feature Photos

Top: Human remains transfer cases are stored ready for immediate use in Kuwait City, Kuwait, Aug. 15, 2019. (Photo by Sgt. Ashley Breland)

Bottom: An American flag lays cleaned and ironed in Kuwait City, Kuwait, Aug. 15, 2019. (Photo by Sgt. Ashley Breland)

Europe currently has over 100,000 U.S. service members strategically postured to deter Russia and train for large-scale combat operations (LSCO). The Army is essential in this mission due to its rotational presence and committed land power. As a result of recent Russian actions and war against Ukraine, the Army has expanded upon its commitment to Europe, specifically along its eastern flank. The establishment of V Corps Headquarters forward command post and U.S. Army Garrison Poland proves this point. However, units in the Baltic states operate much closer to Russia's doorstep. The strategic importance of this region is recognized by the Army, and its rotational deployments are focused on a heel-to-toe presence and consistent training with NATO allies. Leaders within these units are entrusted not only to lead dynamic forces through complex tactical operations but also to overcome logistical hurdles while keeping LSCO at the forefront of their minds.

One of the most critical considerations in training LSCO in the Baltic states is the

Sustainment in the Baltic States and the Effects on LSCO

A Junior Leader Perspective

■ By 1st Lt. Benjamin Kenneaster



Recently promoted Lt. Gen. David M. Hodne, former commanding general of 4th Infantry Division, poses with distribution platoon and Havoc Forward Support Company leadership at Niinisalo Training Area, Finland, May 5, 2023. Two distribution platoon Soldiers were recognized for their integral part in the transportation of ammunition in support of Operation Arrow over 4,000 miles from Poland to Finland. (Photo by 1st Lt. Raven Parker)

sustainment warfighting function. Sustainment is not only at the foundation of all Army operations but is a prerequisite for conducting realistic training throughout the region. Logistics missions in this area are intricate and challenging, but it must be recognized that their execution is invaluable training that will ensure success in war. In short, the best means of achieving operational success and preparedness is through informed, decisive, and synchronized sustainment efforts. The remarkable achievement of Task Force Mustang, which comprised the 1st Battalion, 8th Cavalry Regiment, and its attachments from the 2nd Armored Brigade Combat Team, proved this true. Task Force Mustang was effective in training for LSCO alongside NATO allies during a nine-month rotational deployment to Camp Herkus, Lithuania, due to its ability to overcome frequent logistical challenges. Specifically, Task Force Mustang overcame operational demands by synchronizing

logistics with effective command and control over a vast area of operations.

Task Force Mustang accomplished its overall mission, but countless sustainment-related lessons were learned throughout the rotational deployment. The task force's primary sustainment experiences to draw from were fuel accountability, ammunition management, and transportation movement requests (TMRs). A comprehensive analysis of these challenges and a review of unit actions culminated with realistic recommendations. These recommendations inform the sustainment community on the logistical struggles of an armored task force training in the Baltic states while preparing the U.S. for LSCO. This review also considers sustainment operations throughout the European Command (EUCOM) and offers insight for future rotational units oriented on similar objectives.

Fuel is an operational necessity often taken for granted by rotational units due to home station availability. However, the flow of fuel to forward operating sites (FOSs) across theater requires meticulous accountability. Fuel-related challenges experienced by Task Force Mustang included the risk of misaligned fuel deliveries, poor coordination between adjacent or subordinate units, and inaccurate accountability or reporting. Task Force Mustang quickly learned fuel standards must be implemented immediately upon arrival at FOS.

Understanding storage capabilities, enforcing fuel hours, forecasting training demands, and creating a common operating picture are prerequisites for efficient fuel operations. Establishing fuel accountability and reporting systems was vital to rapidly relaying FOS fuel capacity and quantities on hand to higher headquarters. Additionally, fuel operations must be adequately resourced and compared against the long-range training calendar in training resource meetings with key leadership present to achieve shared understanding. If co-located with an adjacent unit or operating with NATO allies, fuel accountability officers must maintain situational awareness of all applicable training calendars, capabilities, and demands. Task Force Mustang established these systems early and prioritized fuel operations, which allowed units to train as planned.

Additional lessons learned included the importance of interoperability with the host nation, which could commit resources and improve fuel operations. Enforcing strict monthly fuel accountability reports and understanding the intricate details of a fuel delivery well ahead of time while holding subordinate units accountable for the fuel

standard operating procedures (SOPs) ensures long-range fuel requirements are met.

Ammunition is the most challenging class of supply to manage in theater for a variety of reasons. As the unit works to become fit to fight, it's important that an intentionally planned reception, staging, onward movement, and integration model is executed, as it will set the conditions for the entire deployment; therefore, early unit efforts must prioritize sustainment operations and ammunition management. Holding previous units accountable for improper ammunition management by

completing comprehensive inventories and delaying the ammunition handover until it is accurate are invaluable practices when building a foundation for accountability. Ammunition and storage facility inventories must be detailed and include all relevant live, dunnage, residue, and facility data before accepting ownership. The process may be painful, but a controlled effort prevents worse circumstances in the future. Additionally, the synchronization of unit training plans with the detailed requirements for receiving ammunition in theater must be comprehensive.

Task Force Mustang embraced the challenge of EUCOM ammunition

management by monitoring accountability systems, enforcing SOPs, utilizing the expertise of the brigade ammunition warrant officer, and building a strong relationship with the ammunition supply point (ASP). Although the ASP was often stressed by units that struggled to draw and turn in ammunition, all Task Force Mustang mission timelines were met primarily due to intentional ownership and accurate ammunition inventories.

The best means of achieving operational success and preparedness is through informed, decisive, and synchronized sustainment efforts

Recommendations to improve ammunition accountability in the Baltic states include a second ASP farther east, a routine rotation of brigade ammunition warrant officers, and a comprehensive and reliable ammunition movement standard.

Finally, TMRs were the sustainment crutch for Task Force Mustang throughout the rotation. Due to an unprecedented backlog of vehicles awaiting certification under the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), TMRs became necessary for conducting fuel and ammunition operations. TMRs required near-flawless synchronization due to the volume of intermediate parties and the necessary paperwork and accompanying bureaucracy. Miscommunication, delayed follow-through, and conflicting international requirements often stalled TMRs. One such example was the unrealistic timeline that required diplomatic clearances, march credits, and cargo sheets be submitted 30 days in advance just to initiate a TMR.

Task Force Mustang quickly realized its dependence on TMRs was of the highest importance during its fit-to-fight phase and subsequent deployment operations. Funneling all ammunition TMRs through the brigade support battalion support officer was an effective method to ensure shared understanding, but the bulk and complexity of missions stressed this system regularly. TMRs for repair parts, fuel, and ammunition often had to be simultaneously executed to enable daily operations. Even with long-range predictability and detailed requirements forecasting, Task Force Mustang struggled with TMRs.

The ideal method for ensuring successful TMRs in the Baltic states is aggressive and unrelenting unit follow-through that acknowledges external theater support has competing requirements. Such practices presented an opportunity for patience and a renewed commitment by leaders. A final lesson learned about TMRs was that email traffic was often at risk of being misread or actioned late, which delayed movement. Therefore, task force leadership needed to be deliberate when submitting requests and routinely monitor TMR statuses until mission completion.

To avoid compromising timelines, the unit movement officer, support officer, and movement control team should conduct daily touchpoints. Routine synchronizations focused on the status and required actions for TMRs must be integrated into battalion and brigade SOPs and battle rhythms. Units must enforce their Command Deployment Discipline Program at echelon and appoint a movement team on battalion staff. The movement team should comprise an experienced NCO and competent junior officer with the primary responsibility of enforcing and tracking all unit movement, delegating to subordinate units, and providing a link to the battalion field grade officers.

As the Army trains for LSCO, fundamental sustainment practices must be considered. A glimpse at an armored task force in Lithuania highlights this truth by providing insight into recent supply challenges faced by a unit tasked with assurance, deterrence, and reinforcement of a region that could be the next great battlefield. It is important now more than ever to analyze the sustainment demands of units in eastern Europe and the detailed locations they train and fight from. Such analysis will prove invaluable for future operations and prepare the Army for large-scale combat with a near-peer in the Baltic states.

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Feature Photo
Distribution platoon Soldiers receive the first Defense Logistics Agency fuel delivery from a host nation driver at Camp Herkus, Lithuania, in January 2023. Unconventional yet safe standards reset the standard for future resupplies from the same vendor and often the same truck driver, Lithuania. (Photo by 1st Lt. Benjamin Kenneaster)

SUPPORTING WARFARE IN THE INDO-PACIFIC THROUGH SPACE-BASED SUSTAINMENT

■ By Maj. Brian E. Hamel



As the U.S. military prepares for conflict against threats highlighted in the “2022 National Security Strategy,” all eyes are on the Indo-Pacific theatre of operations in preparation for large-scale combat with the People’s Republic of China (PRC). In the Spring 2012 issue of Strategic Studies Quarterly, Everett Carl Dolman wrote, “There is no plausible near-term scenario in which the United States could invade and sustain an occupation of the Chinese mainland.” With over 5,000 miles separating Hawaii from Taiwan, Dolman’s line of logic also applies to the first island chain, an archipelago east of the Asian mainland that includes Taiwan, Japan, and the northern Philippines. The

second part of Dolman’s comment focuses on sustainment. With a finite amount of cargo aircraft and ships to transport materiel and the joint force, the DOD needs to create additional distribution nodes or celestial lines of communication to enable a resilient sustainment architecture. The space domain remains completely underdeveloped regarding providing terrestrial materiel support and offers an ideal platform to sustain smaller units of action within the joint force, which would otherwise divert aircraft or naval vessels that could be used to support larger formations. Creating a proliferated satellite constellation in low earth orbit (LEO) to enable space-based logistics negates the need for access basing and overflight, mitigates the need for being overly reliant on intermediate staging bases, and promises to extend the medical golden hour to compensate for the tyranny of distance. Space-based logistics can facilitate the delivery of blood, weapons, 3D-printed parts, power, and food to the joint force and has the potential for delivery time to be measured in minutes, not hours or days. The impetus for this idea can be traced to the Cold War.

Historical Underpinning

In the 1960s, the CIA’s Committee on Overhead Reconnaissance developed CORONA spy satellites to augment the U-2 spy planes. Keyhole was the codename for the CORONA satellites, an allusion to a spy peering through a person’s keyhole. CIA Director Allen Dulles and others understood the importance of the CORONA program after U-2 pilot Francis Gary Powers was shot down

over the Soviet Union and detained. The CORONA program would be the only way to get imagery of the Soviet Union and other denied areas. The film capsule would be ejected from the satellite, pass through the ionosphere, and be recovered midair. On Aug. 19, 1960, the film capsule for Discoverer 14 was successfully recovered in midair by a C-119. This theory of materiel reentering the atmosphere to enable mission requirements can be applied to modern sustainment issues and appears more feasible every day, given the continuous reduction in space launch costs.

Supporting Details for a Sustainment-Centric Satellite Constellation in LEO

In 2018, it cost SpaceX an estimated \$62 million to launch 22,800 kilograms into space, about \$2,720 per kilogram. This was more efficient in terms of launch cost than any operation previously conducted. From 1970 to 2000, the launch cost per kilogram ranged from \$10,000 to \$32,000. These lower launch costs invert the theory of how the government fields satellite constellations and bring promise to launching satellites with materiel on board to support the warfighter. Since 2018, SpaceX has managed to drop launch costs to \$1,500 per kilogram aboard the Falcon-9. Some experts believe the launch cost per kilogram will drop to almost \$200 soon.

Acknowledging Rocket-Based Sustainment

The authors of “The World in 90 Minutes or Less: Rocket Logistics and Future Military Operations” in the

October 2022 edition of *Campaigning: The Journal of the Joint Forces Staff College* studied the Vanguard initiative. This program is “exploring the use of orbital-class rockets for point-to-point transportation.” Currently, rocket logistics is faster than air cargo and does not need to adhere to national airspace regulations because of its altitude. However, it is more expensive, requires landing clearances that routinely take 14 to 30 days, and does not offer an exfiltration option without refueling on its delivery site. Additional drawbacks include longer fuel loading times and limited locations that can act as launch sites. The Falcon Heavy can carry one M1A1 tank or one MH-60R helicopter. However, given the adversary’s technical instruments and long lead time for loading and fueling, it will be several years before the DOD can harness the capabilities of rocket logistics to conduct sustainment operations in contested environments. Furthermore, given the operational constraints, rocket logistics appears to be an inferior sustainment method to a constellation in LEO, which can resupply the joint force faster.

Analysis and the Way Ahead

LEO is the most efficacious orbit to establish a sustainment constellation capable of supporting the joint force in the Indo-Pacific. LEO has a revisit rate of 90 minutes, which means the same satellite is over the same area every 90 minutes. If you have two satellites with mirroring orbital characteristics, the revisit time is halved. Orbital characteristics (semi-major axis, eccentricity, inclination, right ascension of the ascending

node, or the argument of perigee) could be adjusted to create a robust constellation that could provide sustainment coverage every few minutes if enough satellites were fielded. As you expand to medium earth orbit (MEO), this revisit rate drops to one visit every 12 hours instead of every 90 minutes. The area where you can field these satellites is more extensive, but the ability to surge sustainment operations for the joint force is handicapped due to time. MEO is 2,000 to 20,000 kilometers from Earth. In that light, a sustainment surge could take hours, time that warfighters may not have. Highly elliptical orbit (HEO) has an elongated apogee (its orbit is shaped like an oval to increase the amount of time over Russia), and accounting for orbital tilt, the window to drop a sustainment payload is less than that of the three other orbits. Geosynchronous or geostationary orbit (GEO) rotates at the same velocity as the Earth, which means its window to deploy its payloads is continuous. Still, reception time is the longest due to its distance from the Earth. In sum, LEO has proven to be the most efficacious orbit to support the joint force, followed by MEO, GEO, and then HEO.

While LEO has a commanding lead over all the other orbits, additional benefits are worth considering. HEO appears to be the least beneficial orbit due to the small window in which a sustainment payload can be delivered. However, if units of action were conducting operations in the Arctic, the results would be different because HEO has

a large apogee over the Arctic areas. Given the PRC’s ongoing Polar Silk Road initiative, HEO should not be entirely discounted.

Recommendations

The following is recommended to enable the U.S. to be better postured to sustain its formations.

- Invest in research and technology to further explore how distribution nodes in LEO could support the warfighter in Indo-Pacom. Especially if the warfighter is interfacing with satellites under 100 kilograms, the entire satellite could fall back to Earth or just eject the desired payload. Either way, the payload must survive traveling through the ionosphere and deploy a parachute, like the joint precision airdrop system, or descend directly into shallow water where the warfighter could recover it.
- Continue to follow the advances of companies like Made In Space, whose work on additive manufacturing in space could provide dividends for how these space-based logistics constellations can produce vehicle parts, medical infrastructure, or weapons in space.
- Explore options to field a GEO constellation over adversaries and on their periphery. This allows the U.S. a marked advantage for sustainment and simultaneously denies an adversary the capability to field any of their satellites in proximity to those of the U.S.

- Experiment in MEO because it provides the next best alternative in many cases to LEO and HEO for Arctic-centric problem sets.
- Continue encouraging and incentivizing civil and commercial equities to invest in space, space-related technologies, and the space defense industrial base.
- Research how space-based logistics can extend beyond large-scale combat operations and can be used throughout the competition continuum for a variety of mission sets, including humanitarian assistance/disaster response missions.

The DOD will not be able to complete these initiatives on its own. Contested logistics remains one of the DOD’s most significant problems. Until it explores innovative solutions using all domains and dimensions, the DOD risks early culmination, limited operational reach, and undue risk to force, ultimately remaining at a relative disadvantage.

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Feature Photo
Sgt. Angel Lopez-Pena, a heavy equipment operator with the 84th Engineer Battalion, 130th Engineer Brigade, 8th Theater Sustainment Command, lays out camo netting on Schofield Barracks, Hawaii, Nov. 2, 2023. (Photo by Staff Sgt. Tristan Moore)

STRATEGIC ENABLER'S LENS

Supporting LSCO in a
Contested Environment

■ By Lt. Col. Michelle P. Santayana and
Capt. Stephen Gowen



As the Army organizes divisions and corps into formations supporting large-scale combat operations (LSCO) for the Army of 2030, sustainment operations with the right capability and capacity must be predictive and precise to support smaller and more dispersed units better. How logistics forces are formed, resourced, and trained for LSCO will shape the conditions for supporting the fight in contested environments and the response to conflict and competition in the multidomain operation sphere. This article explores the complexities of sustainment in a contested environment from the lens of a strategic enabler, provides insights on overcoming challenges based on lessons learned from an ammunition supply mission in the Middle Eastern country of Qatar, and offers actionable strategies for navigating through logistical obstacles with confidence.

Understanding the diverse command relationships, responsibilities, and missions in a joint environment is essential in multidomain operations to ensure unity of effort. The following depicts the unique missions and responsibilities of geographic combatant and component commands in the theater:

- U.S. Transportation Command (USTRANSCOM) leads the strategic-level effort of projecting and sustaining combat power by expanding global transportation networks to aggregate force packages and expanding access to posture the joint deployment distribution enterprise to deter,

win, and meet the nation's objectives. It synchronizes global mobility capacity to effectively operate in a contested environment, leveraging allies and partners while enhancing relationship building to enable freedom of maneuver in the theater of operation.

- U.S. Central Command's (CENTCOM's) mission is to champion cooperative regional security and stability and enable military operations and activities with allies and partners to support enduring U.S. interests.
- U.S. Army Central Command (ARCENT) is an operational level Army force in the CENTCOM area of responsibility (AOR) that generates favorable conditions for joint forces in and out of theater, sets the theater for rapid execution of military operations, and enables forward presence to deter acts of aggression promulgated by the adversaries.
- The 1st Theater Sustainment Command sustains the fight, sets the theater by posturing resources and capabilities, and ensures sustainment is readily available to the warfighter at the point of need.
- The Military Surface Deployment and Distribution Command (SDDC) performs global deployment and distribution (D2) operations by providing surface mobility options and sustaining warfighting requirements to ensure strategic mission readiness supporting combatant

commands and the total joint force. As the Army component command of USTRANSCOM, SDDC is the connective tissue that links the entire distribution network together with capabilities and capacities to move combat power globally via highways, ports, and rails to enable dynamic force employment, warfighting readiness, and lethality at scale.

As one of only two SDDC forward deployed battalions assigned to the 595th Transportation Brigade, the 831st Transportation Battalion acts as single port managers responsible for managing the flow of DOD cargo in the countries of Saudi Arabia, Qatar, Bahrain, United Arab Emirates, Yemen, and Oman. The battalion conducts terminal port operations, facilitates surface distribution, and enables strategic transportation operations, providing sustainment, deployment, and redeployment expertise for combat-credible military forces. It also coordinates access to 12 strategic seaport infrastructures, maintaining capacity and preserving readiness to support USTRANSCOM's mission requirements in the theater. The Qatar detachment is involved in the booking process, movement execution, vessel loading, and export to the port of debarkation, ensuring all DOD cargo is delivered on time while meeting all customs process requirements. Headquartered on Al Udeid Air Base, Doha, the detachment synchronizes strategic, operational vessel movements for USTRANSCOM, CENTCOM, ARCENT, and U.S. Air Forces Central transiting in and out of Qatar.

As one of the many strategic enablers on the ground in the CENTCOM AOR, it is key for sustainment units to set conditions for speed and flexibility with the growing demand in today's logistical operations, often requiring extensive logistics support to ensure mission success. It is critically important to improve the unity of effort within the joint logistics enterprise (JLENT) to ensure maximum effectiveness and flexibility to deliver sustained logistics support in a contested environment marked by competition, scarce resources, geopolitical tensions, and rapidly evolving technological advancements. This also makes it imperative for businesses and military logistics to adopt a confident and optimized approach to ensure seamless operations and maintain a competitive edge. This article also examines the military operation in Qatar to illuminate how successful partnerships established at Al Udeid Air Base have increased lethality, global agility, interoperability, and operational effectiveness for successful joint operations.

Understanding a Contested Environment

Field Manual 4-0, Sustainment Operations, recognizes the importance of the Army and joint force adapting and preparing for LSCO in highly contested environments by operating effectively across all contested domains, integrating sustainment with its joint and multinational partners, and synchronizing operations across all levels to enable unity of effort, operational reach, freedom of action, and prolonged endurance. Ongoing efforts in Ukraine and the U.S.

Indo-Pacific Command contribute to other contested environments, drawing SDDC assets (airlift, sealift, etc.) to meet daily competition and contingency demands. For this article, a contested environment in the logistics sector refers to a highly competitive and rapidly changing marketplace where businesses and military logistics encounter various challenges that can hinder the efficiency and effectiveness of operations.

Key Challenges in Contested Logistics

From a strategic enabler's lens, the three most significant challenges in contested logistics are trade barriers, political instability, and technological disruptions.

- **Trade barriers.** In a contested environment, intricate trade policies and protectionism measures can impede the smooth flow of goods. Adapting to changing regulations and seeking alternative supply chain routes are essential strategies to mitigate the impact of trade barriers.
- **Political instability.** Geopolitical tensions and political unrest can disrupt supply chains, leading to delays and increased costs. Developing contingency plans, diversifying suppliers, and enhancing situational awareness are crucial in navigating such risks confidently.
- **Technological disruptions.** Rapid technological advancements, including automation, artificial intelligence, and blockchain, are revolutionizing

logistics. Embracing these technologies and investing in digitization can streamline operations, enhance efficiency, and enable seamless connectivity in a contested environment.

Overcoming Challenges with Confidence

While overcoming challenges, the 831st Transportation Battalion Qatar detachment's keys to mission success have been the lessons learned and best practices from daily operations, where collaborative partnerships have been fostered, planning and synchronization have been proactive and synchronized, and D2 operations have been streamlined.

- **Foster collaborative partnerships.** Building strong partnerships with suppliers, shipping companies, and other stakeholders in the supply chain can enhance efficiency and responsiveness. Through collaboration, businesses and military logistics can collectively share resources, manage risks, and navigate challenges. The military operations in Qatar examined in this article's case study demonstrate collaborative efforts with host-nation organizations, multinational partners, and private contractors, creating a business ecosystem that promotes effective logistics support. These partnerships allowed for the sharing of expertise, information, and resources, facilitating the smooth execution of operations. By leveraging local capabilities,

the U.S. military enhanced its ability to quickly adapt to regional conditions, thereby increasing overall operational efficiency.

- **Proactive planning and synchronized operations.** Efficient logistical operations require meticulous planning and synchronization. The U.S. military in Qatar employed proactive planning methods to anticipate demand, allowing for the allocation of necessary resources contested daily. By utilizing advanced data analytics and forecasting techniques, the military operation optimized the flow of personnel, equipment, and supplies, minimizing delays, ensuring effective support to the troops on the ground, and allowing for rapid response to changing mission dynamics. This included solutions like cross-docking, real-time monitoring, and just-in-time inventory management.
- **Streamlined D2 operations.** Effective D2 operations are the backbone of any successful SDDC logistics operation. Military operations in Qatar employed innovative strategies to ensure rapid and accurate distribution of essential goods. By adopting industry best practices and using advanced tracking and monitoring systems, the military maintained visibility and traceability of supplies from the point of origin to the final destination. This level of control reduced the risk of delays, minimized loss, and ensured troops received critical resources promptly.

Case Study for Contested Environment

The ammunition supply mission was a theater resupply and retrograde munitions mission that occurred at a Qatari seaport. Due to the drawdown in mission requirements across the CENTCOM AOR, the need for resupply and retrograde had decreased, which made this operation between the JLENT partners and Qatari government agencies more significant. Key stakeholders collaborated and coordinated to ensure a shared understanding of the operations by conducting mission briefs, meetings, and rehearsals before the execution date. The Qatar detachment’s focus was the processing and documentation of the import cargo and port operations, ensuring customs waiver requests (CWRs) were submitted timely to the Qatari government headquarters (HQ). Leading up to the operation date, the detachment was in constant communication with the port authority, emphasizing priority in the mission, ensuring zero incidents during port and vessel operations, and continuously coordinating to ensure timelines, safety, and personnel processing were finalized before the start of the operation. The culminating event was the full rehearsal of concept with all key stakeholders 24 hours prior to mission execution.

JLENT partners performed roles ranging from the vessel carrier contractor ensuring stevedoring services were completed, Air Force

working dog teams inspecting and clearing tugboats, vessel berth areas, and trucks operation, U.S. Naval Forces Central Command divers ensuring zero obstructions in the vessel berth area, and port authority officials monitoring safety for all parties. The Qatar detachment provided oversight of port operations, ensuring vessel and port operations were executed safely with no operational delays.

Issues for Contested Logistics

In the ammunition supply case study, JLENT partners experienced challenges in a contested environment based on trade barriers, political instability, and technological disruptions. The rapidly changing environment, constrained resources, and competing demands for resources in the CENTCOM AOR made it more essential to plan, execute, and synchronize logistics operations collectively and collaboratively in a unified effort.

- Regarding trade barriers, all cargo must have CWRs submitted to the Qatari government HQ to receive approval and acceptance into Qatar. This means the Qatari government can deny any cargo entry into the country, which would hinder military operations in Qatar and the Persian Gulf if not approved.
- For political instability challenges, being part of the Persian Gulf involves unwanted third parties potentially hindering vessel operations, such as with rising tensions with Iran. Precautions may

need to be taken to ensure the safety of military operations and equipment to ensure unhindered movement throughout the Persian Gulf.

- Concerning technological disruptions, many ports across the globe have begun to switch from personnel-operated equipment to unmanned automated equipment. Qatari ports utilized automated gantry cranes to load and discharge vessels, which in the future could be a key point of failure should a gantry crane go astray while holding a container full of ammunition 50 feet above the ground. Additionally, potential near-peer adversaries investing in new equipment and software that could hack into equipment and track cargo movements can cause unprecedented infrastructure failure in multiple ports worldwide.

Solutions to Contested Logistics

Lessons learned from the Qatar ammunition supply mission identify the need to foster collaborative relationships, proactively synchronize planning and operations, and streamline processes and systems to maximize responsiveness in logistical operations.

- **Foster collaborative partnerships.** Collaboration with the Qatari government and port authorities was vital for optimizing ammunition operations at ports in Qatar. The military actively engaged with

Qatari government officials and port authorities to enforce stringent security protocols, safeguard the secure handling of ammunition, and work closely with shipping companies, customs, and other regulatory bodies. The Qatar detachment ensured compliance with U.S. military and Qatari regulations and maintained smooth operations.

- **Proactive planning and synchronized operations.** Efficient communication and accurate documentation are vital ingredients for seamless operations. All mission partners implemented stream-lined communication channels and leveraged digital platforms and secure networks to communicate simultaneous operations effectively.
- **Streamlined processes and systems.** Systems used by the military allowed for real-time information sharing among relevant mission partners, ensuring seamless coordination and minimizing delays. Digitized documentation processes replaced manual paperwork, making tracking and updating information easier and minimizing human errors. This digital transformation provided secure platforms for exchanging classified information, allowing operation coordination with units in different countries and enabling hour-by-hour updates until the vessel departed, ensuring seamless transition and zero incidents.

Conclusion

Successfully navigating logistics as a strategic enabler in an LSCO-contested environment necessitates a confident approach, optimized strategies, and continuous adaptation. Understanding the viewpoints of contested logistics challenges, employing proactive planning, fostering partnerships, and streamlining strategic surface deployment and distribution will help shape conditions for successful joint force operations for Army 2030. Effective and efficient joint operations in Qatar demonstrated the commitment of mission partners to ensure access, build partnerships, and deter adversaries to achieve operational and strategic objectives within the CENTCOM AOR. With a proactive mindset and a commitment to excellence, joint and Army forces can optimize operations, drive growth, and thrive even in the most contested environments.

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Feature Photo
Cpl. Brandon McCray, a signal support systems specialist assigned to the 87th Division Sustainment Support Battalion, 3rd Division Sustainment Brigade, 3rd Infantry Division, sets up communications equipment during the National Training Center rotation 23-05 at Fort Irwin, California, March 2, 2023. (Photo by Staff Sgt. Jared T. Scott)

Exercising the Pacific Theater AFSB

■ By Col. Courtney M. Sugai and Lt. Col. Mark A. Yore



The Indo-Pacific region presents multiple challenges for the joint force to fight and win against a near-peer or capable adversary. To extend the operational reach and prolong the endurance of the joint force during large-scale combat operations (LSCO), sustainers must navigate the vast geography of the Pacific, synchronize and integrate logistics operations, and deliver materiel and capability with precision. Mission command is critical to synchronizing sustainment operations in a theater where logistics nodes are separated by long distances from the North American West Coast through Oceania and Southeast Asia. Army Doctrine Publication 6-0, Mission Command: Command and Control of Army Forces, defines mission command as the Army's "approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation." Sustainers must exercise and rehearse the relationships within the mission command structure to work through friction and gain a shared understanding of challenges and opportunities presented in a joint and multinational setting.

In the Indo-Pacific Command (INDOPACOM) theater, the 402nd Army Field Support Brigade (AFSB) participates in a series of exercises known as Operation Pathways, conducted in multiple locations across the Pacific. These exercises enable the theater AFSB to set conditions for delivering

capabilities to multiple locations simultaneously during conflict and rehearse these processes with strategic, operational, and tactical partners. Each exercise is also an opportunity to rehearse the command relationship between the various Army Materiel Command (AMC) elements that send strategic sustainment capability to the warfighters in the joint operations area (JOA). Army Sustainment Command (ASC), a major subordinate command of AMC, capitalized on the opportunity to rehearse the command relationship between the theater AFSB and AMC sustainment enterprise elements in the JOA during Talisman Sabre 23 (TS23). Taking place in Australia, Talisman Sabre is a biennial U.S.-Australian exercise designed to advance a free and open Indo-Pacific by strengthening partnerships and interoperability among key allies.

Theater AFSB Mission Command

The 402nd AFSB directly supports the U.S. Army Pacific with the 8th Theater Sustainment Command (TSC). The 402nd AFSB is ASC's Pacific theater AFSB and serves as ASC's operational arm in INDOPACOM. The theater AFSB synchronizes efforts of the AMC enterprise through the employment of logistic support elements (LSEs) in the JOA and ensures sustainment capabilities have been prioritized and resourced effectively to enable supported units. Over the past two decades, the U.S. military delivered strategic-level logistics to the point

of need in relatively uncontested space. In LSCO against a capable adversary in the Pacific, logistics operations will be confronted by multidomain threats impacting air and sea lines of communications and theater distribution.

The theater AFSB provides command and control (C2) of AMC enterprise logistics in this contested space. During TS23, the 8th TSC was a combined joint TSC, composed of U.S. Army, U.S. Air Force, and Australian logistics personnel, and co-led by the 8th TSC commanding general and the Australian Defense Force Joint Logistics Command's director general of logistics operations. The 402nd AFSB performed its role as a theater AFSB and exercised operational control (OPCON) over a corps and division LSE deployed to support I Corps and the 25th Infantry Division (25ID). The Army Field Support Battalion-Hawaii (AFSBn-HAW), an assigned unit to the 402nd AFSB with a habitual direct support relationship with 25ID, deployed a division logistics support element (DLSE) in support of 25ID. The 404th AFSB, a sister brigade of the 402nd AFSB with a habitual direct support relationship to I Corps, deployed a corps logistics support element (CLSE) in support of I Corps. The AFSB deployed a C2 team that was collocated with the combined joint TSC, exercised OPCON over the 404th CLSE, and the 404th CLSE exercised OPCON over AFSBn-HAW DLSE. This command structure of the theater AFSB enabled efficient



Lt. Col. Mark Yore leads Capt. Robert Rendle, Capt. Maurice Williams, Chief Warrant Officer 4 Midge Chacon, and Robert Curran in an after action review of Talisman Sabre 23 at 402nd Army Field Service Brigade headquarters at Fort Shafter, Hawaii, Nov. 7, 2023. (Photo by Aaron Decapua)

communication, prioritization, and synchronization of enterprise sustainment efforts in the JOA. In the months following TS23, the 402nd AFSB will mission command a reverse equipment configuration hand-off team from the 404th AFSB, based in Charleston, South Carolina, but deployed to the Indo-Pacific to conduct the reinduction of the equipment drawn by exercising units into Army pre-positioned stocks.

Understanding sustainers must adapt to changing operational environments, Maj. Gen. David Wilson, the commanding general of ASC, recently brought AFSB commanders from all over the globe together to discuss command relationships between the AFSBs, CLSEs, and DLSEs at a senior leader forum. During the forum, held at Rock Island Arsenal, Illinois, in August 2023, commanders

from all seven AFSBs wargamed a series of scenarios that would generate requirements for strategic sustainment in various theaters during LSCO. The AFSBs exercised the concept of deploying ASC sustainment capabilities into the combat theater, including CLSEs and DLSEs. The theater AFSB commander exercised OPCON of supporting CLSEs and DLSEs. The wargame reinforced the importance

of mission command principles: competence, mutual trust, shared understanding, commander's intent, mission orders, disciplined initiative, and risk acceptance.

With a foundation of strong bilateral and multilateral relationships, the theater AFSB's understanding of the theater and joint force land component commander's priorities sharpens with every exercise. Each Pathways exercise introduces theater-specific problem sets that enable the 402nd AFSB to improve its ability to assess the needs of the force in time and space, integrate and synchronize efforts of the sustainment enterprise in theater, and inform the combined joint theater sustainment commander on the most effective distribution of national-level sustainment capability in theater. Through Operation Pathways and exercises like TS23, the theater AFSB develops the relationships and systems to sustain and demonstrate combat credible forces' reach and endurance in fighting and winning in combat, all in support of the goal of integrated deterrence.

Lessons Learned

Understanding the Chief of Staff of the Army's priorities — warfighting, delivering combat-ready formations, undergoing continuous transformation, and strengthening the profession of arms — the 402nd AFSB focuses on training objectives to ensure enterprise logistics synchronization delivers combat-ready forces. In TS23, logistics experts from AMC

life cycle management commands (LCMCs), Tank-automotive and Armaments Command, Army Aviation and Missile Command, Army Communications-Electronics Command, and Joint Munitions Command provided strategic logistics support exercising Army units both in person and through mobile means to enable combat readiness. Due to the dispersed nature of support and dynamic requirements, ASC LSEs communicated to LCMC experts, deployed by DLSEs and CLSEs to the tactical customer units, through senior command representatives in OPCON to the theater AFSB. The theater AFSB and subordinate LSE command structure enabled senior command representatives the flexibility to balance and synchronize LCMC support. Constant communication and a disciplined battle rhythm enabled effective distribution of assets, ensuring all operations were supported. Future exercises will provide more opportunities to exercise, develop, and refine processes and rehearse the command relationships that could be exercised in a contested environment during crises or conflict.

Conclusion

Army logisticians who have served in the Pacific understand the requirements to sustain the joint force in a large-scale conflict will quickly exceed capabilities if they are not synchronized in time to achieve desired effects. The Army's command relationships must be clear and well-rehearsed

to codify processes and procedures in standing operating procedure and doctrine. U.S. Secretary of Defense Lloyd J. Austin III said in April 2021, "Throughout American history, deterrence has meant fixing a basic truth within the minds of our potential foes: And that truth is that the costs and risks of aggression are out of line with any conceivable benefit." Leaders in ASC and AFSBs will continue seizing opportunities to build relationships, improve systems with every lesson learned, and continuously set conditions for credible logistics that endure through time and space should competition escalate to crisis or conflict.

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Feature Photo
The 8th Theater Sustainment Command Commander Maj. Gen. Jered Helwig, highlights key points of the Joint Logistics Over-the-Shore operation to the Secretary of the Army Christine Wormuth and other senior leaders during Talisman Sabre 2023 in Bowen, Australia, July 31, 2023. (Photo by Maj. Jonathon Daniell)

Applying the Proposed 04A

Sustainment Officer Immaterial Code in Multifunctional Sustainment Formations

■ By Maj. Dennis A. Vinett

Sometimes, the Army needs the right military occupational specialty (MOS) for a particular job. In other cases, it is more important for the right leader to be in place to oversee the job. To this end, the Army created officer immaterial codes for specific positions inside organizations. The most common example is the coding of a headquarters and headquarters company (HHC) commander position as 01A – Officer Generalist instead of trying to figure out which of the functions of an HHC is best suited for that command position. Department of the Army Pamphlet (DA PAM) 611-21, Military Occupational Classification and Structure, justifies these codes because positions exist where “the job description does not correlate directly with a specific branch or FA (function area). These codes permit flexibility with force structure and inventory changes, allowing more accurate coding to fulfill requirements.” The Army created 13 flexible codes covering multiple warfighting functions, but

one code should exist and does not: 04A – Sustainment Immaterial. The Army needs to enhance the Army Talent Alignment Process (ATAP) by opening the aperture for key developmental sustainment positions to find the right sustainment leaders. This would allow officers to seek new positions, leveraging their unique experiences and perspectives within the sustainment warfighting function. The 04A position would encourage better communication and collaboration across the sustainment community.

Why would the Army need to provide flexibility for sustainment immaterial positions? The answer is linked to multifunctional sustainment units like the division sustainment brigade (DSB) and the brigade support battalion (BSB). These formations leverage multiple elements of the sustainment warfighting function, including logistics, personnel services, financial management, and, in many cases, health service support. Critically, when no functional sustainment formations are dedicated to a specific sustainment element, commanders and staff in multifunctional formations act as the sustainment integrator, synchronizing and implementing comprehensive sustainment support. Many of these key positions are currently coded for the 90A logistician, which is understandable but does not maximize the ATAP. ATAP capitalizes on officers’ individual knowledge, skills, behaviors, and preferences, enabling units to acquire the right leadership. By limiting positions that integrate and synchronize sustainment in multifunctional sustainment formations to a single MOS, ATAP is generally limited to finding talent inside that MOS. The same lack of flexibility impacts the Command Assessment Program (CAP) for sustainment officers. By coding key developmental multifunctional sustainment positions as 04A, the Army can look across the breadth and depth of available talent and align the right leaders with the right organizations to increase the quality of support to the warfighter.

The sustainment warfighting function straddles two centers of excellence, sustainment and medical, and the geographically separate Soldier Support Institute, responsible for personnel services and financial management. Providing opportunities to cross over elements internal to sustainment through the 04A code helps grow more capable leaders who bring different perspectives and experiences to formations that support each of the multiple elements of sustainment. At the same time, allowing all sustainment specialties to compete for 04A billets increases the connective tissue between various sustainment institutions. The institutional arm of Army sustainment must overcome necessary bureaucratic obstacles to increase collaboration, and applying the 04A code creates a need for a broad degree of competence across all sustainment fields to staff these multifunctional positions adequately. Each specialty can and should maintain its area of expertise, especially when needed in functional sustainment formations above the division level. Still, each specialty can also invest in the general application of sustainment at the tactical level by ensuring officers in that specialty can integrate and synchronize across the breadth and depth of the sustainment.

By opening the aperture for these types of positions, officers across the sustainment warfighting function would no longer be constrained to specific billets or positions. As an example, a non-logistics sustainment officer with a depth of experience supporting

tactical formations may, in some cases, be a more appropriate choice for a division sustainment support battalion (DSSB) commander or support operations officer than a logistics officer who has primarily served in echelon above division formations. Sustainment formations at the division and below are generally multifunctional in nature, and even if they do provide specific functionality, they are still nested with a multifunctional sustainment formation and coordinate daily with sister formations in the division to provide holistic sustainment. The 04A code allows for a wider pool of officers to be considered but does not obligate the ATAP or CAP processes to select individuals solely because they are unique. In most cases, it may still make sense to choose a logistics officer for a DSSB command or a DSSB support operations officer, but the 04A – Sustainment Immaterial code would provide flexibility when ATAP or CAP processes indicate a better fit could be an officer from the adjutant general (AG), finance, or Medical Service Corps (MS). The same example could apply to the division sustainment troops battalion (DSTB) or the BSB. If the division structure evolves to include certain kinds of medical units, it could also apply to multifunctional medical battalions (MMBs). With the implementation of 04A positions, officers falling across the sustainment warfighting function may find themselves more inclined to understand and apply other elements of sustainment outside of their primary field. A brigade or division benefits when sustainers of

all branches understand their role and how to integrate their capability and capacity within multifunctional sustainment formations.

This proposal is not revolutionary; exceptions to the norm occur regularly across the Army. Logistics officers have served in key developmental AG billets inside the DSTB. MS officers have commanded BSBs in 90A positions. Such crossover occurs, but the current structure, defined by its specificity, acts as an impediment rather than an enabler to the ATAP/CAP process. If the right leader of the wrong MOS can add value to an organization without detracting from other requirements, it is the Army's responsibility to consider all ways to enable its talent management processes.

The maneuver and protection warfighting functions have already applied this logic in the form of the 02A – Combat Arms Generalist and the 01C – Chemical/Engineer/Military Police Immaterial positions. Internal to sustainment is a 05A – Army Medical Department Immaterial code and a 01D – Financial Management/Adjutant General Immaterial code. These codes still have a purpose but do not address the holistic need for a true sustainment immaterial position and are not present to the degree needed in multifunctional sustainment units. The 04A code, on the other hand, could apply to key developmental positions in the DSB, DSSB, DSTB, and BSB or could be expanded to units like the MMB. Additionally, these formations have

support operations officer, executive officer, and operations officer positions, which coordinate across the sustainment warfighting function daily and would benefit from the 04A code. Many of these key positions are coded based on the prevailing sustainment element in the formation (e.g., DSSB focusing on logistics positions), but the Army needs truly multifunctional sustainment formations. Due to a division's importance in conducting large-scale combat operations, the focus remains on multifunctional sustainment capability and capacity at the division level. Multifunctional sustainment formations employing leaders with experience and backgrounds in all four sustainment elements would facilitate coordination with other supporting and supported units. Individual officers can and should leverage their interests and talents, regardless of MOS, to compete for 04A positions. DA PAM 600-3, Officer Talent Management, acknowledges the challenges of the future battlefield: "Multi-domain conflict is anticipated to be complex and unpredictable, requiring diverse talents to respond to threats in a rapidly changing environment." The Army should do everything in its power to maximize the impact of the right sustainment leader to integrate sustainment across the battlefield.

The 04A position provides the Army flexibility and does not create an additional burden on sustainment formations. The 04A position does not constrain or limit the ATAP/CCP processes; it enables them. A high-performing logistics officer

may still be the best choice for a DSB commander, but there needs to be a current mechanism in place to evaluate the suitability of candidates from other specialties. It is in the Army's best interest to broadly assess sustainment leaders across the four sustainment elements for certain positions to ensure the best fit is not hidden from sight. Sometimes, the Army does need a particular MOS for a specific position. However, some positions place more emphasis on leadership and holistic sustainment. In those cases, the right leader is more important than the right MOS. In the Winter 2021 issue of Army Sustainment, Retired Gen. Ed Daly, former commander of Army Materiel Command, states ATAP is designed to enable officers to detail their knowledge, skills, behaviors, and preferences (KSB-P) so commanders can match them to the right positions. The 04A – Sustainment Immaterial code opens the aperture, allowing qualified sustainers across the spectrum to maximize their KSB-Ps to access previously constrained positions and to enable the Army to select the right leaders for the right jobs.

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