



LAND POWER

AN ANNUAL PUBLICATION OF ALLIED LAND COMMAND



MAGAZINE
2023

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A PILLAR OF PARTNERSHIP



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IN TODAY'S
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"Thank you for being here!"

andrew_public

"Looks like NATO.. HAS IT ALL.... Everything! Yeah"

RuizzColleen

"Cheers to @BG_LTU_eFP, 9th Rotation. Great Picture, Great Team. #WeAreNATO #TogetherStrong"

HoffBenedikt

LANDCOM **facebook**

"God bless NATO"

Carles Asensi Torres

"My bravery blessings be with you all "

Karren Kilpatrick

"Everything we see in the world is the creative work of women." Mustafa Kemal Atatürk

Orhan Kilic

LANDCOM **instagram**

🔥🔥 These are some great shots!

jamesgmedia

One of the best NCOs at LANDCOM! Congrats OR-7 David Vivar!

oileduptravelingyogi

Gimme more tanks! ✨✨✨

king_italy

Keep in **touch.**



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WELCOME



Front Cover:

Credit: (U.S. Army photo by Patrick Albright)

A U.S. Soldier takes part in a training event, showcasing for the secretary of the Army the skills Soldiers acquire and hone at Fort Benning, Georgia, Nov. 19, 2018

Rear Cover:

Credit: DoD photo by Tech. Sgt. Rasheen Douglas, U.S. Air Force/Released

The LANDPOWER magazine is an annual publication produced by Allied Land Command (LANDCOM) dedicated to the promotion of actions and ideas, contributing to the improvement of the NATO Force Structure (NFS) efficiency and effectiveness. The views expressed in this publication do not necessarily reflect those of the LANDCOM Commander, SACEUR, NATO or its member nations and cannot be quoted as an official statement of those entities. An electronic version that includes additional links to in-depth articles, supplementary articles and an ability to provide online comments is available from the LANDCOM website (www.lc.nato.int).

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BSG LTC BENZER

from the

COMMANDER'S COLUMN



We live in a complex world, but NATO Allied Land Command (LANDCOM) has a clear mandate: to serve as NATO's primary advocate in the land domain. This means that LANDCOM is at the forefront as the driving force for deterrence and defence of the Alliance, which underpins this new and dangerous chapter in the story of NATO.

LANDCOM's mission is land domain combat readiness. The LANDCOM HQ delivers Alliance readiness capability by enabling interoperability, standardization, and competency. LANDCOM provides the expertise and focus on the land domain that enables the Alliance to deter real or potential threats. As SACEUR's Combined Forces Land Component Command (CFLCC), LANDCOM bridges the strategic and operational levels and coordinates activities across the land domain. Our presence and commitment to mastering the land domain provide for the defence of our allies and deterrence against potential adversaries. Our world is becoming increasingly dangerous, and those who would bring disunity and chaos to the world are spending their time looking for ways to threaten our way of life. It is the job of LANDCOM specifically

and NATO more broadly to be ready when called.

We continue to improve our combat readiness and responsiveness through continual refinement and application of NATO standards throughout NATO land forces. LANDCOM's Combat Readiness Evaluation standards allow NATO's competitive land power advantage to grow through Alliance nations and our partners. Ultimately, LANDCOM seeks to increase land capabilities and develop capacity across the Alliance to advance our shared security interests.

Russia Changed the Game

Just over a year ago, the unthinkable happened when Russia invaded Ukraine. They unleashed further devastation and destruction the likes of which have not been seen in Europe since World War Two. The staggering violence and chaos of Russia's aggression undermines the rules-based international order and represents a challenge to free people everywhere. The threat that the war could spin out of control and affect the NATO Alliance directly was too great to ignore.

Within hours of Russia's further invasion of Ukraine, NATO activated its defence plans to prepare the Alliance to provide a rapid response to assure, deter and if necessary, defend and protect the Alliance territory and sovereignty. To that end, NATO deployed the NATO Response Force in a collective defence context for the first time in the Alliance's history. It's now a year later, and NATO has eight battlegroups with more than 43,000 troops under NATO command, mainly along the eastern flank of the Alliance. The land power of NATO is front and center in this unprecedented response.

NATO's Response

Russia's aggression towards Europe is not a new development. It has posed an unprecedented challenge to Euro-Atlantic

Security for the last 10 years. The Russian Federation's illegal and unprovoked invasion of Ukraine has upended many aspects of European security, along with terrorist groups that still pose a threat to the Alliance. Meeting present and future challenges will require fundamental changes to our Alliance posture in the land domain. NATO's New Force Model seeks to increase the number of troops at high readiness to well over 300,000, from the current level of 40,000. Additionally, LANDCOM is shifting its functions to focus on its role as the CFLCC in support of SHAPE's transition to a Strategic Warfighting Headquarters.

The land domain has been the most consequential part of the conflict in Ukraine, and while this draws attention to NATO's high-end land capabilities, it also highlights our logistical strengths and moral imperative. I speak with our Ukrainian brothers and sisters on a regular basis and I know their strength and I echo the words of our Secretary General who recently said "Ukraine's rightful place is in the Euro-Atlantic family. Ukraine's rightful place is in NATO. And over time, our support will help to make this possible". I agree with this sentiment and LANDCOM will do whatever it can to help bring some of these capabilities to their aid and give them the benefit of our training and expertise in the land domain.

The land domain is an area that also benefits from the addition of our newest Alliance member, Finland. For many years, troops from Finland and NATO worked together as partners. Now Finland is stronger as an Ally and NATO is better prepared to deter and defend with Finland in our Alliance. Speaking of partners and the Alliance, beyond Ukraine to our partners Georgia, Bosnia and Herzegovina and Moldova, they stand strong in the critical Eastern Flank of the Alliance and we stand with them as partners who value security and stability.



What is LANDCOM doing?

NATO land forces are on the ground along the eastern flank in a strong land response that shows the world that we are engaged and ready for potential threats. This public growth of the NATO deterrence force is more capable of defending every inch of NATO territory.

This clear focus on outcomes brings coherence to all our activities in the land domain. Every effort, from the readiness and locations of our forces to our exercise cycles, engagements, and communications, will now be aligned across all 31 nations in a focused way that supports our strategic aims.

First and foremost, 'Deter and Defend' is a war-prevention strategy. NATO does not have any aggressive intent against any country, including Russia. We are a defensive Alliance and we do not seek confrontation. These measures are non-

escalatory and are taken to strengthen our NATO eastern flank Allies. Our transparency is one of our strengths to ensure the intent of our actions, and media from around the world have reported on our battlegroup deployments to the eastern flank.

NATO has increased its military presence in the eastern part of the Alliance by improving its readiness to protect and defend all Allies. NATO created an additional four battlegroups in Bulgaria, Romania, Hungary, and Slovakia as part of the changing European security environment, significantly reinforcing NATO's collective defence posture. Framework Nations, Host Nations, and Troop Contributing Nations contribute to these battlegroups along the eastern flank, representing a significant commitment by the Allies. NATO land forces are engaged, postured, and ready with credible force to assure, deter and defend in an increasingly complex security environment.

As we look to the future, we can see many changes from the strategic to the tactical level. Here in LANDCOM, we will continue to focus on developing the land domain aspect of Euro-Atlantic security. With SHAPE's transition to a Warfighting Headquarters, LANDCOM takes on the role of CFLCC, the development of the NATO Force Model, and renewed focus on the external challenges that are posed along our eastern flank. NATO and LANDCOM are poised to increase our ability to stand ready to deter and defend our members in a clear and effective manner. **LC**

For The Soldier!

GEN DARRYL A. WILLIAMS
LANDCOM Commander

from the

CSEL COLUMN

COMMAND SENIOR ENLISTED LEADER



The Alliance

With the recent accession of Finland to NATO, The Alliance is demonstrating its strength and commitment to deter aggressors and defend the Euro-Atlantic area of responsibility in the Land, Sea, Air, Cyber, Information and Space Domains. However, with the current environmental challenges and the ever-growing security threats, The Alliance is becoming increasingly significant in terms of the development and competency of the NCO Corps. Serving as the "backbone" of any military requires professional, educated, trained, and disciplined leaders. The NATO NCO is committed to excellence and exemplifies a high degree of military competency.

Deter and Defend

When I arrived at LANDCOM just about a year ago, during a town hall, one of our great young NCOs asked me what my focus would be during my tenure as Command Senior Enlisted Leader (CSEL). It was a great question as this is my first NATO assignment. As CSEL, there are always many areas that deserve attention, but it has to be narrowed down to what you consider

as key areas for your given formation/command. Of course, when I arrived, my focus quickly developed into trying to gain a better understanding of the Graduated Response Force (GRF(L)) in the Land Domain, or in other words, to seek every opportunity to promote the NCO Corps at all levels. The NCO Corps is becoming more and more relevant as demonstrated in the Russia-Ukraine conflict. NCOs bring a unique set of skills and experience gained over a career. The idea of empowering NCOs and junior leaders in Ukraine to operate within the commander's intent, to display initiative, and to accomplish the missions proved time and time again the importance of NCO leadership development.

Given its multinational characteristics, NATO is a unique environment to work in. However, the main focus areas outlined on these pages could be used within a national environment as well. The commander's vision and end-state are always supported. The HQ staff is integral in putting these words into action, and as NCOs, we support both of these areas. CSMs are custodians of the NCO Corps within any army. The last two bullets pay attention to our NCO Corps, and the professional and leadership development of its members. Two very important pieces that will ensure the health and well-being of the Alliance in the future. I share these points, and I ask that all of our NCOs focus on these main areas as well.

Professional Military Education

Over the last several months, the CSEL's office has been engaged in a multitude of initiatives throughout the NATO Force Structure (NFS) at the Corps, Divisional, and Battle Group (BG) levels. As a CSEL, our most important role is to understand and communicate the Commander's intent and priorities.

NCO development is demonstrated time and time again. With participating in the NCO educational system, attending major training events, conducting Combat Readiness Evaluations (CREVAL), or attending strategic conferences with the Alliance and Partner Nations, NCO leadership and development are a constant part of what we do at LANDCOM. These engagements have been proven to be outstanding experiences at all levels! Professional military education for an NCO is a continuum throughout their career. At NATO, our leadership academies are the cornerstone of NATO professional military education. We support institutions such as the NATO School Oberammergau, the Swiss Armed Forces NCO Academy, and the Baltic Defense College, with keynote speakers and instructors to teach, coach, and mentor the NCO leadership of NATO. We always ensure that our NCOs have all the tools and resources needed to perform their duties. Working with Allied Command Operations, we will always seek opportunities to strengthen our NCO Corps and develop resilience through training and education.

In closing, it is a privilege and honor to serve you as the representative of the NCO Corps at LANDCOM. I am looking forward to our continuous engagements at all levels across the Alliance, building partnerships to achieve common goals, developing friendships to connect with members of the Alliance and partner nations, and finally, fostering strong relationships to enhance our capabilities to achieve success on the battlefield. ^{LC}

For the Soldier!

CWO GEORGES D. MARTIN
LANDCOM Command Senior Enlisted Leader



MONITORISING DETERRENCE POSTURE

*Cecil Ladislaus
Commander (OF-4), GBR Navy
LANDCOM G3 CUPLANS (G35)*

Monitorising is a word which does not appear in the Oxford English Dictionary, so why use this word in the title? It is a term which I have become familiar with during my time here in HQ LANDCOM. Monitoring is the word which should be used. One of the many challenges associated with working in a multinational environment is that language can sometimes be misused unintentionally, but the art of success lies in digging in to work out what the intended message is and communicating it in a clear, unambiguous manner. So what? A bit of digging and use of the online Word Sense Dictionary suggests that monitorise is a non-standard verb which means to watch carefully by means of a monitor.

In his article "Deterrence: What it can (and cannot do)", Michael Ruhle says that:

"Deterrence is the threat of force in order to discourage an opponent from taking an unwelcome action. This can be achieved through the threat of retaliation (deterrence by punishment) or by denying the opponent's war aims (deterrence by denial). This simple definition often leads to the conclusion that all it takes to deter is to put enough force on display. As long as both sides act "rationally", i.e. according to a cost-benefit calculus, and if none of them is suicidal, their military potentials will keep each other in check."

The NATO definition of deterrence is:

"The convincing of a potential aggressor that the consequences of coercion or armed conflict would outweigh the potential gains. This requires the maintenance of a credible military capability and strategy with the clear political will to act."

With this in mind, deterrence posture is an effective way which nations can use to maintain stability and deter potential aggression. NATO has used this across Europe since the end of the Cold War however, current events continue to highlight the need to maintain a combat credible, communicable and capable posture as a foundation for wider deterrence activities. As an alliance, our deterrence posture is built around a mix of conventional and nuclear capabilities, as well as a range of political and diplomatic measures aimed at deterring potential adversaries. To deliver the land part of this equation, land forces must be agile, resourced, sustained and enabled.

As a former submariner who served in one of the United Kingdom's Vanguard Class Ballistic Missile submarines, I am proud to have served as part of my nation's nuclear deterrent. This sovereign institution has been maintained continuously since 1969. Unlike other deterrence means, the art of maintaining a continuous at sea nuclear deterrent capability is that the submarine remains undetected at all times, ready to respond to the most extreme threats to preserve peace, prevent coercion, and deter aggression. All of this is done quietly, without publicity and maintained 24 hours a day, 7 days a week. It is not an open display of force, it could also be argued that it is also hard to quantify in terms of tangible effect, but the deterrence is based on the fact that the risk of use of this powerful capability has a deterrent effect on potential adversaries.

How do you monitor whether the nuclear deterrence effect has been successful? Is it based on the fact that the adversary has not used their nuclear weapons, is it based on the fact that you have not had to

use theirs? These are crude metrics, and have been the subject of many academic discussions. Perhaps what we seek to deny in this example is the adversary's ability to monitor our deterrence activity. We wish it to remain at sea, undetected and unaffected by our adversary's actions. We will therefore, for the purposes of this article, limit ourselves to closely monitoring and consider the view given in Jessica Cox's article:

"Given this changing security environment – and until our competitors and potential adversaries are ready and willing to forgo nuclear weapons themselves – NATO must be able to deter nuclear threats and respond to nuclear use by Russia in order to safeguard the security of the almost one billion people who live under the NATO umbrella."

In contrast to continuous at sea deterrence (CASD), in the land environment, deterrence posture largely relies on forward-deployed military presence in Europe, which includes rotating deployments of troops and equipment. This is done to send a clear signal to potential adversaries that any act of aggression against NATO member states could, subject to collective agreement, be met with a timely response. Unlike the submarine delivered nuclear deterrent, land presence serves as a visible demonstration of NATO's commitment to collective defence and the readiness to respond to any potential threat. It relies on a higher degree of empathy and understanding as capabilities differ significantly across the personnel, equipment, training and sustainability pillars.

Much of this is easy to quantify, qualify and most importantly communicate to allies and adversaries. As such, the ability for our adversary to monitor activity is perhaps what we strive to achieve. We want to make it clear that we are ready, we are combat capable and we are ready to respond anywhere, any time.

NATO places a strong emphasis on political and diplomatic measures to reinforce its deterrence posture. Military activity is a part of how we do business and relies on close coordination and consultation among member states, as well as diplomatic efforts to promote stability and prevent conflicts from escalating. This is particularly important as we look at how we take forward the declarations made at the Madrid Summit in particular, the commitment to deploy additional robust in-place combat-ready forces on the eastern flank.

We now find ourselves in a position where we need to deliver against a commitment made at the Madrid Summit which requires significant financial investment but which must also be delivered in a timely manner otherwise it raises questions on the relevance of summit declarations. As these forces are deployed, messaging is key to ensure that in meeting the commitments, the message is one of deterrence not escalation. We must be able to highlight NATO's commitment to collective defence and the principle of Article 5, which states that an attack against one member state is considered an attack against all. This serves as a powerful, and financially costly deterrent. Arguably our nations are our most critical audiences, they closely monitor what we do and wish to see that what is being spent in these fiscally challenging times, represents value for money – perhaps

we are considering how we monetarising deterrence.

Doing nothing is not an option. We need to deploy, train and prepare for war, the quote “si vis pacem para bellum” – “if you want peace, prepare for war” is as true today as it was when Latin author Publius Flavius Vegetius Renatus coined the original phrase in the fourth or fifth century AD. Our messaging must be clear and non-escalatory while also assuring our allies. Whatever we do must be cost effective, we cannot be wasteful and it must be coherent.

So how do we do it? Firstly we need to define the desired outcome. From a



military perspective the goal could be to deter the threat of aggression. We would then need to develop metrics. These would allow us to measure progress toward that outcome – this could be the adversaries ability to forward deploy land forces within a defined time period. To support this, there is also the requirement to monitor progress through data collection. This requires information collection and sharing capabilities through secure, enabled networks. This data must be analysed to determine if the deterrent activities are making progress toward the desired outcome. This would then allow decision makers to adjust

strategies to achieve the overall outcome. If deterrence is not achieved using purely military means, it may be necessary to use other non-military levers such as sanctions.

While no deterrence posture can guarantee absolute security, NATO's deterrence posture has been effective in maintaining stability and deterring potential aggression in Europe. As an alliance we must continue to adapt posture to meet evolving security challenges. If the adversary has a particular weapon system, we must have systems in place to counter and destroy their systems at range. To protect our nations and guarantee economic

prosperity, we cannot simply monetarise deterrence, we must exploit it and ensure that we maintain our commitment to collective defence.

To monitorise, or monitor deterrence we need to set clearly defined outcomes. These must be supported by the development of relevant metrics, through timely data collection and analysis, and the

ability to adjust strategies as needed to achieve these outcomes. In our case, we are looking at strengthening NATO's deterrence and forward defences. We must do this to prevent any aggression against NATO territory and throughout, we need to be able to monitor our adversary closely and deny them the opportunity to achieve success in meeting their objectives. If we fail to prepare, we must prepare to fail. Monitoring deterrence which multiple audiences are engaged in. Our message must be clear, we have credible military capabilities and strategies with the clear political will to act. **LC**

SURVIVING IN TODAY'S WARFIGHTING LANDSCAPE, URBAN OPERATIONS!

Edward "Sean" Rooney
CIV, USMC

MAGTFIC-MCAGCC-MCTOG-D&S

The warfighting functions consist of seven mutually supporting military activities: command and control, fires, force protection, information, intelligence, logistics, and maneuver. The success or failure of mission execution during a future armed conflict depends on how command elements plan and manage the warfighting functions. This article briefly examines each warfighting function within an urban environment and the risk to that function during the execution of urban operations (UO). The determination of the risk informs the risk assessment and its ranking of low, medium, or high severity, which then leads to the potential risk management (mitigation) measure. The purpose of the assessments is informational, and readers can use the outcomes to evaluate current NATO UO doctrine, organization, training, materiel, leadership and education, personnel, facilities, and interoperability (DOTMLPF-I). The list below summarizes general themes for conducting UO during an armed conflict, including the need to:

- Train and empower Soldiers for the decentralized execution of missions.
- Conduct an intelligence preparation of the battlespace and civil-military operations planning.
- Conduct combined arms operations—maneuver warfare principles are prerequisites for success.
- Recognize that information directly impacts physical military operations.
- Conduct in-depth planning for logistics—logistics is a pacing warfighting function.
- Conduct fires planning. Artillery is the "king of battle," but it is useless without logistics.
- Plan for short-range air defense (SHORAD) against unmanned aircraft systems.
- Practice communications discipline—detection equals targeting, which equals destruction.
- Recognize that technological advancements can outpace doctrine and training.
- Identify key terrain, including cellular telephone towers, road and rail networks, and ports.

UKRAINE—February 2022 to August 2022

Preliminary Considerations

On 24 February 2022, the Russian Federation attacked Ukraine on multiple fronts. The Russian political leadership categorized the invasion as a "Special Military Operation" and justified it as an act of "self-defense" as defined under Article 51 of the United Nations Charter. In summary, President Vladimir Putin of the Russian Federation argued that the eastward expansion of the North Atlantic Treaty Organization (NATO) and its encouragement of Ukraine to pursue membership posed a direct threat to the Russian Federation, which required intervention. This analysis of ongoing military operations in Ukraine focuses primarily on Russia's military actions. The analysis, however, is preliminary and based on the assessment of open-source reporting, which requires caution given its inherent fragmentary nature and susceptibility to manipulation. The purpose of this assessment is to identify general trends for consideration that could influence change within the DOTMLPF-I construct and UO.

Initial Observations—Russian Military Operations

An overarching and initial observation of Russian military operations includes what is arguably a reversion to form: an apparent heavy reliance by the Russians on fires. This does not reflect official Russian doctrine per se and in no way suggests that the Russians are unimaginative and cannot conduct maneuver warfare or combined arms operations. Rather, it identifies a historic trend dating from the Second World War through the Cold War, and including more recent Russian military operations such as those in Grozny and Syria. Russian forces will readily revert to fires to address challenges within the battlespace. This apparent reliance on overwhelming, massed fires to achieve results is unapologetic. Massed fires (cannons, missiles, and rockets) can result in the annihilation of the target, regardless of its type, which approximates victory, defined in this instance by the Russians.

For example, specific to an urban environment, if attempts at the execution of maneuver warfare principles prove too costly, or the operational tempo proves laborious, Russian forces appear readily willing to withdraw and use fires. This results in the destruction of the urban area, its depopulation, and by default, forced migration. The latter, as demonstrated by the movement of displaced civilians from Ukraine into neighboring countries, with current estimates at twelve million, significantly strains the capabilities of those countries to provide humanitarian assistance, including food, clothing, shelter, and security. In such a scenario, Russian forces may not occupy the urban environment after its destruction, but they have created a humanitarian crisis that cannot be ignored, even if the Russians are willing to do so.

Considerations for Urban Operations

Initial Russian military operations in Ukraine demonstrated several factors involving UO that require consideration, while also reinforcing known lessons learned for NATO Allies and partners. The list below is not exhaustive, but provides some examples, which includes the need to:

- Synchronize operations across all domains. The synchronization of operations across all domains increases tempo. Success, however, requires advanced planning, training, and an intelligence, surveillance, and reconnaissance (ISR) assessment of the battlespace.
- Train to conduct combined arms operations. Russian military operations in Ukraine reinforce the need for training involving large-scale combined arms operations. This is of particular importance when conducting UO: infantry and armor must work seamlessly together during both defensive and offensive UO, or risk piecemeal destruction. The effective use of short range antitank guided missiles (ATGM) by Ukrainian forces underscores this need for cooperation.
- Increase Soldier comfort with decentralized execution. Train and empower Soldiers to conduct tasks and achieve

mission success through decentralized execution, often referred to as “decentralized operations” during UO. This includes the need to conduct UO without sustained fixed-wing (FW) or rotary-wing (RW) close air support (CAS), and for units and individuals, to continue the fight even if isolated.

- Conduct extensive combat service support (CSS) planning. The ability to conduct rapid CSS operations will sustain tempo, but CSS units will need to plan for dispersal and the ability to function forward, as supply depots in rear areas are vulnerable to long-range fires and sabotage by special operations forces. Planning considerations should also consider the weather, road conditions, and the need for tracked or wheeled CSS vehicles.
- Plan to conduct information operations. The power of information simply cannot be ignored and the actions of Soldiers, particularly those in urban environments, will be filmed and shared across social media and traditional news services. For example, the ubiquitous availability of cell phone cameras guarantees the filming of future UO. The challenge for information operations is that edited videos, video clips, or false videos—in some instances the developed with assistance from artificial intelligence—can easily result in the creation of false and damaging narratives with strategic, operational, and tactical impacts.
- Plan to conduct operations in adverse weather conditions. This includes the need to assess natural terrain features surrounding urban areas, and how that could impact primary and secondary road networks. Maneuver warfare demands mobility. An immobile unit is a target that risks detection, targeting, and destruction. (Detection ≈ Targeting ≈ Destruction.)
- Electromagnetic warfare (EW). It continues to increase in importance. For example, the inability or neglect of communications discipline—speaking in the clear or using unencrypted networks—creates opportunities for an enemy to monitor your communications and target your forces.

TABLE 1—UKRAINE—RUSSIAN SPECIAL MILITARY OPERATION
PRELIMINARY OBSERVATIONS

ENVIRONMENT—URBAN				
	WARFIGHTING FUNCTION	RISK	RISK ASSESSMENT	RISK MANAGEMENT
1.	Command and Control	Detection and targeting	HIGH SEVERITY	Ensure command elements displace often; mask electromagnetic emissions of command and control elements; increase the tempo through mission command; train Soldiers for decentralized operations and the ability to sustain operations without continuous instructions and limited or no communications from command and control (higher headquarters [HHQ]) elements
2.	Fires	Counterbattery fires	HIGH SEVERITY	Plan CSS in advance (sustainment); leverage lethality and range (accuracy and mass); address mobility/mechanization requirements; conduct advanced coordination with the DIB; conduct advanced training; leverage UAS as spotters or for direct, pre-authorized engagements; coordinate operations with US Space Command; leverage commercial systems; stockpile adequate reserves of ammunition and replacement parts (gun barrels); plan for local air defense with GBAD systems
3.	Force Protection	Detection, targeting, and destruction by enemy fires	HIGH SEVERITY	Conduct counterbattery fires; provide AAA support; conduct counter-unmanned aircraft system (CAS) missions; conduct CAS missions; ensure for cover and concealment; displace; conduct electromagnetic spectrum operations (EMSO); secure critical infrastructure nodes; primary and secondary road networks, ports, and freight rail; implement camouflage and deception TTP.
4.	Information	False narratives	MEDIUM SEVERITY	Plan for information operations to include countering false narratives; monitoring social media; filming by civilians and the enemy; train Soldiers to understand individual actions can have outsized strategic, operational, and tactical consequences; plan for civil affairs (CA); understand cultural implications to include historical memory and cultural/political symbolism
5.	Intelligence	Inadequate/unavailable	MEDIUM SEVERITY	Conduct surveillance and reconnaissance missions; utilize special forces; utilize military and commercial satellites; utilize UAS—laser, thermal, and video capabilities; implement camouflage and deception TTP.
6.	Logistics	Detection, targeting, and destruction by enemy fires	HIGH SEVERITY	Plan for logistics forward; ensure DIB manufacturing capabilities exist; conduct interoperability testing with Allies and partners; include locations and understand the capacity of airfields, freight rail, ports, and road networks; determine replenishment requirements for all classes of supply, particularly Class V—ammunition load/mix, quantity, fuzes, etc., and Class VII—medical
7.	Maneuver (Movement)	Limitations lead to attritional warfare	MEDIUM SEVERITY	Conduct staff training, wargaming, and brigade-level training deployments and exercises; plan for decentralized operations to increase tempo and opportunities for surprise, shock, and exploitation

- Plan for the presence of proxy forces. Proxy forces are likely to exist within the urban battlespace, which will create challenges in distinguishing between combatants and noncombatants. Understanding the laws of armed conflict and adhering to the constraints and restraints as established by the command and the corresponding rules of engagement (ROE) will increase in importance as violations could have immediate and long-term negative impacts within the information domain.

Table I lists the risks to the warfighting functions currently observed during ongoing UO in Ukraine. The list is not meant to be exhaustive, but rather to formulate a foundational basis for ongoing and future analysis that could influence NATO doctrinal development. What is noteworthy is how the Russians appear to use fires to target the urban environment, particularly when there is a loss of operational tempo.

- Logistics: Logistics is a pacing warfighting function. Current military operations have underscored the importance of logistics forward, the importance of interoperability (ammunition and systems), and an understanding of needs and usage rates for various classes of supply. Military operations in Ukraine have also demonstrated the vulnerability of static supply depots and the need for the dispersion of CSS units. Finally, logistics requires advanced planning with the defense industrial base (DIB) to ensure that manufacturing capacity exists.
- Longer ranges: The need exists for the ability to conduct fire missions at longer ranges, so much so that "older systems" such as the Soviet-era 2S7 Pion, which is akin to the United States' M110 howitzer, are being brought back.
- Higher accuracy: Massed fires may not be enough if adequate protection measures against such fires exist. That is, if adversary forces have adequate cover or utilize subterranean layers, this will limit the impact of munitions.
- Loitering munitions: Soldiers should anticipate the increased use of loitering munitions by adversarial forces in the urban environment and in all environments.
- Shoot-scoot: Advanced detection capabilities, whether radars or UAS, require speed in the execution of fire missions, further underscoring the utility of mechanized (wheeled or tracked) artillery systems to sustain operational tempo.
- Unmanned aircraft systems (UAS): The use of UAS as spotters increases targeting accuracy due to imaging capabilities (thermal and video) and laser designation regardless of the environment, and speed of execution, i.e., the transmission of information or the direct engagement of targets by UAS with pre-approved authorities to do so.
- Ground-based air defense (GBAD): Whether anti-aircraft artillery (AAA) or missile systems, an enemy's GBAD system requires artillery (shells/missiles) with greater range if you cannot penetrate an enemy's GBAD system with fixed-wing (FW) or rotary-wing (RW) aircraft. An enemy's GBAD system could result in a significant reduction of the availability of the air combat element to support the ground combat element,

increasing the need for artillery (shells/missiles) support.

- Learning: The Russian military is a learning organization. Changes during ongoing military operations demonstrate this, as the Russians created a unified command, implemented measures to improve convoy discipline, and conducted a tactical pause for reconstitution and regeneration.
- Culture: The level of acceptance of casualties is arguably and historically higher within Russia versus NATO and remains a significant planning consideration. Military history continues to exert a strong influence on Russian military planning, as does deception planning, and planning for operations in the information environment (OIE), even though Russian intent or methods do not necessarily align with how NATO would conduct OIE.



Summary

Initial observations of the conflict between Russia and Ukraine highlight many topics of interest for conducting urban operations and those within other environments but three central themes stand out and deserve further consideration. The first is the challenge of detection within the battlespace. Ongoing operations in Ukraine have concretely demonstrated that detection equates to targeting and destruction by adversarial fires. The avoidance of destruction requires an ability to displace rapidly, which in turn requires the ability to increase tempo. The second central theme is the need to train for combined arms operations. The inability to conduct combined arms operations for large scale combat, regardless of the environment, arguably reflects a lack of training, a lack of emphasis on decentralized execution, that is, independence of action by lower echelons, and a lack of planning for logistical requirements to sustain tempo. If the synchronize of maneuver and fires does not occur, this can result in stagnation within the battlespace, which will create vulnerabilities to adversarial maneuver and fires. The third and final central theme is that information operations simply cannot be ignored. Messaging, the narrative, matters and will have an impact, from the strategic to the tactical levels. **LC**



MULTINATIONAL LOGISTICS IN A THEATRE OF OPERATIONS: KEY CONSIDERATIONS AND BEST PRACTICES

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LANDCOM G4 LOGISTICS OPERATIONS

CLEONUS ROBERTS
MAJ (OF-3) US ARMY
LANDCOM G4 LOGISTICS PLANS AND POLICY

The enablement of logistics across a predefined landscape in a theatre of operation, or in a Joint Operations Area (JOA), requires meticulous planning at echelon and a whole-of-government approach. The governmental approach is more civil and in close coordination with commercial entities, Troop Contributing Nations (TCNs), Host Nation Support (HNS), and military organizations. The key considerations in enabling logistics within a theater of operation must be predicated on a basic logistic support concept accepted by NATO Command Structure (NCS) and NATO Forces Structure (NFS), designed to rapidly facilitate the flow of logistics to the point of need.



Theatre and logistic enablement relies on the relationship between Host Nations (HNs), Troop Contributing Nations (TCNs), and Contract Support Organizations (CSOs). The sustainment of a deploying and employed force requires a flexible and scalable logistic support concept. The enablement of logistics at the theatre level consists of three key functions: theatre opening, theatre distribution, and theater sustainment activities. Theatre opening consists of setting the conditions at entry points (seaports, airports, railheads, and border crossing points) to enable the flow of personnel and Mission Essential Equipment (MEE). The logistic-supported framework supports the Reception, Staging, Onward Movement (RSOM) concept.

The deployment and building of stocks require capacity and bandwidth which have to be de-conflicted and coordinated in order to use mobility corridors and reception zones that are established to enable the flow of commodities and equipment. Reception Zones (RZs) are geographical locations providing required critical infrastructure and essential services to ensure

the reception and initial processing of forces. Their main function is the reception of forces, equipment, material, and includes the transshipments from the strategic lift to further modes of transport like road, rail, intra-theater shipment (air or sea), or inland waterway. The main facilities are for Debarkation (PODs), Marshalling Areas (MAs), and Staging Areas (SAs).

The Land Domain Logistics Concept enables logistics operations across time and space in support of strategic initiatives, operational and tactical plans. The Land Domain logistic concept principles will be applied throughout the Deterrence and Defence of the Euro-Atlantic Area (DDA) family of plans. The DDA supports the execution of NATO's three core tasks of collective defense, crisis response, and cooperative security. The current logistics reality in support of the DDA family of plans is that TCNs already maintain an existing logistic operation under a wholesale to retail concept. The receipt of material supplies is generated from the wholesale level at the 4th and 3rd line of logistics supported by industry and national stocks. Distribution of those commodities from the Port of Debarkation (POD) or the logistics hub is the retail operation from the 2nd line of logistics to the 1st line. Understanding the principles of the logistics concept requires an understanding of the roles and responsibilities of each stakeholder.

The stakeholders must identify, coordinate, and establish theatre-level support solutions at the joint operational level, including HNS and CSO, in conjunction with TCN, HN, and NFIU. The ability of HNS offsets requirements for general and organic military support and thereby affects the size and scope of the CSS force that must be committed to an operation. Contracted support is a significant tool that may be employed to gain fast access to in-country resources by procuring the supplies and services that the commander requires. Additionally, contractor support to operations enables competent commercial entities to provide a portion of deployed support so that such support ensures the most efficient and effective use of resources.

The fight will be fought at the Brigade (BDE) level, which means logistically the BDE must be fully coherent with a lean command and control structure, including logistics. Therefore, the Combat Service Support Battalion (CSS Bn) will provide direct support to all BNs in the BDE. This creates the necessity for a multinational NATO collective supply chain at the division level, distributed by the NATO Support Elements (NSE) in conjunction with CSS brigade capabilities.

It is not expected that any NSEs will be located within the BDE area of operation (AoO). If some TCNs require locating their NSEs in the BDE AoO, those NSE elements must be integrated into or at least attached to the CSS Bn and must be under TACON of the brigade commander.

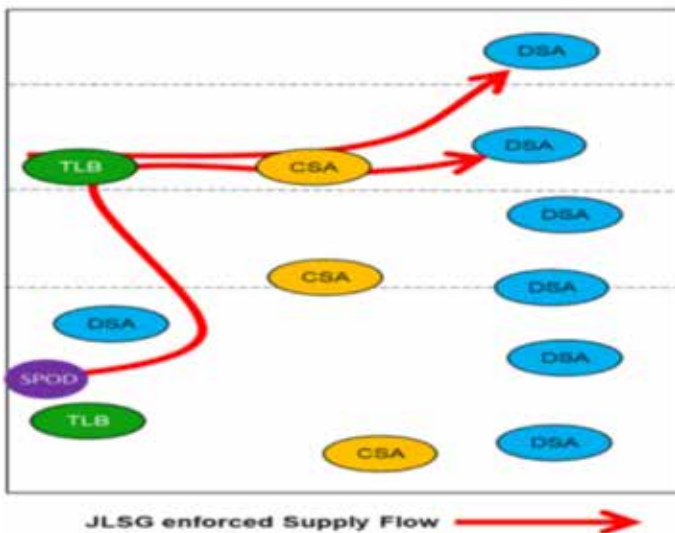
The division level is the only level which has CSS capabilities that not only provides direct support to the divisional troops but also provides general support to all brigades. With this capability at the division level, LANDCOM is developing a new concept that allows more flexibility as well as expediting sustainment. If NCS and NFS elements continue to execute the old linear model, in which every echelon is able to provide general support to the lower echelon, it will require for each Corps force model to have additional CSS brigade equivalents, roughly 2 per Corps.

Across all areas, the NSEs will be the key link between forces and logistic support by the 4th and 3rd line. Understandably, early in an operation, there will be many parallel and redundant lines of supply. The JLSN will only reach the second echelon, mainly division level, and the tactical elements will push support to the brigade and below levels. The JLSN will also be focused on the

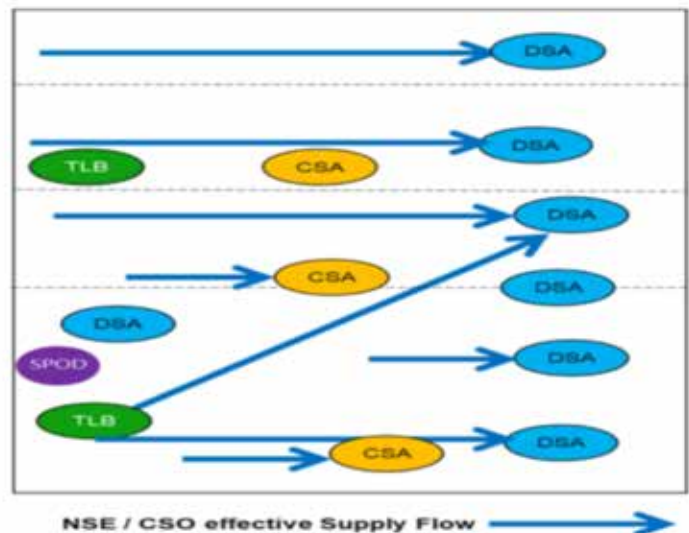
rear area and may not cover a full JOA. The idea of JLSN consists of logistics nodes and capabilities that allow the consolidation of national sustainment and forces flow to provide the required multinational NATO collective supply chain throughput to the division level and below, which incorporates the wholesale and retail concept.

In Figure 1 below, you can see a one-dimensional approach versus a flexible multidimensional one. The one-dimensional approach to support flow is always via the Theatre Logistic Base (TLB) through each echelon. The TCNs have to provide full JLSG CSS support. By using the multidimensional approach, sustainment uses the fastest way possible and consolidates logistics flow, which is vital to streamlining support. The multidimensional approach can be used as a vehicle for the enablement of national requirements and logistics procedures that can transition into a multinational NATO collective logistics support construct to the greatest extent possible. The JLSG is the key manager in close coordination with logistic stakeholders (including those functionally subordinated).

One Dimensional Approach



Flexible Multi- Dimensional Approach



Furthermore, under the multi-dimensional approach, the Joint Logistics Support Groups (JLSG) will focus on de-confliction and coordination. As the operation matures, the JLSG will identify opportunities for efficiency and optimization of common commodities. Within the rear area, a proper strategic NATO enablement organization will focus on strategic and cross-JOA movements and coordination of support from the rear on the Reinforcement and SustainmentNetwork (RSN) to the JLSN via a coordinated transfer to JLSG. The RSN will reach into an assigned JOA to connect to a JTF's JLSN.

Theatre and logistics enablement is complex and challenging in a highly intense environment. In order to simplify logistics

and streamline coordination, NATO logistics must include a flexible and adaptable logistics framework fit for purpose in a contested environment. Implementing a flexible multi-dimensional approach will allow CSS formations to fight, support, enable, and influence WFC's operational reach and prolong endurance. Resources are saved, and sustainment moves faster when consolidating logistics flow in support of NATO in a collective defense posture. **LC**

The LANDCOM alignment with USAREUR-AF, a new beginning

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LTC (OF-4) ITA Army

LANDCOM G5 Policy Section Head

This article aims to provide a brief overview of the developing relationship between LANDCOM and United States Army Europe and Africa (USAREUR-AF), as well as outlining how their future alignment may develop. It will examine the historical precedent for two such organizations (one NATO, the other US) working together, why LANDCOM and USAREUR-AF have aligned, why now, and how it will happen.

The idea of US and NATO Command Structures serving in a Combined HQ in crisis and conflict is certainly not new. An obvious example was the ISAF Joint Command (IJC) and the role it played as a Theatre HQ in Afghanistan for several years. IJC combined the strengths and capabilities of a US Corps HQ with the capabilities of a NATO Graduated Response Force (Land) HQ. This structure provided the IJC commander flexibility in being able to tailor NATO and/or US-specific response options to address different contingencies across the AOR. Therefore, the experiment to combine NATO and US Command structures has worked well in the past. So, why would LANDCOM and USAREUR-AF be aligned, and when would it happen? This could be a perfect condition due to the fact that since last summer, the USAREUR-AF Commander has been the same person as the LANDCOM Commander.

USAREUR-AF, located in Wiesbaden (Germany), and LANDCOM, in Izmir (Türkiye), fulfill similar functions and capabilities in the Euro-Atlantic Area. In both crisis and conflict, USAREUR-AF could be designated as a US Combined Joint Forces Land Component Command (CJFLCC) and/or a Joint Task Force HQ. Similarly, LANDCOM is set to become CFLCC-capable as directed by SHAPE. Thus, the similarity of both HQs' roles and responsibilities makes LANDCOM and USAREUR-AF natural partners for providing theatre-wide Land Command and Control (C2) under a single dual-hatted commander and the principle of Unity of Command. To understand this further, we must understand what a CFLCC is in practice.

C2 in the Land Domain is inherently hierarchical and split between the Strategic, Operational, and Tactical levels of warfare. Within NATO's Strategic Command structure, SHAPE serves as the supreme strategic headquarters and is thus responsible for providing strategic direction and guidance in the execution of NATO operations. During peacetime, supporting Commands (such as LANDCOM) are aligned in a functional manner according to domains. NATO Strategic documents describe the highest Land Domain HQ as a Combined Forces Land Component Command (CFLCC).





The CFLCC is intended to bridge the Strategic and Operational levels. Within the warfighting theatre, a CFLCC has overall responsibility for the planning, coordination, and employment of Land Forces made available in support of a designated commander.

LANDCOM, as the CFLCC, will support SACEUR by maintaining a theatre-wide approach to land operations. In crisis, LANDCOM must therefore be able to split into CFLCC and Land Component Command (LCC) components in accordance with the needs of SACEUR. However, such a split may require significant manning and expertise to be brought in to supplement gaps in the LANDCOM workforce. This is where USAREUR-AF comes into the picture.

Should the NATO Crisis Response Process (NCRP) be activated, LANDCOM may have to split into different components, at the strategic level in support of SACEUR (CFLCC) as well as at the operational tactical level in support of JFCs (LCC), and thus could be augmented by USAREUR-AF to facilitate unity of effort and command in the theatre.

Now that we can understand the reasons for alignment and why this decision has been made, the final question is how it will occur. Understanding the theatre requirements will require coordination and liaison between LANDCOM and USAREUR-AF. Personnel from both LANDCOM and USAREUR-AF must fully understand their operational responsibilities while also maintaining both NATO and US-specific authorities and

command/control relationships. To enable this cooperation, a detailed 'CFLCC Development Plan' has been crafted, which will provide direction and guidance to the personnel of both HQs and outline a time-bound and achievable plan to assure this alignment. A permanent Working Group will focus on how to boost the level of integration between the HQs, focusing not only on solving all technical, procedural, and human interoperability issues but also identifying any possible mitigation solution.

The first joint event (Ex LOYAL VISION) focused on achieving this plan was held in January 2023. The purpose of this exercise was to facilitate the sharing of information and synchronization of events in support of NATO interoperability objectives. Loyal Vision 2023 thereby provided the route to CFLCC & LCC, land domain requirements and alignments with USAREUR-AF in 2023 and beyond. We look forward to further events such as this between the two HQs in the future.

General Williams, as the double-hat commander of both LANDCOM and USAREUR-AF, has requested personnel from both HQs to make every effort to enable and streamline the integration between the HQs through the routine conduct of meetings (virtually and in-person), enhancing information sharing, and ensuring maximum attendance at training events. **LC**






NATO ALLIED



LANDCOM MISSION

On order, LANDCOM serves as LCC in support of JFCs and as a CFLCC to provide theatre-wide domain expertise to SACEUR. As SACEUR's principal land advisor, LANDCOM coordinates AOR-wide activities to effectively deter Russia and Terror Groups and ensure a trained, ready, and lethal land force for NATO.



XX

MND-N
ADAZI, LVA
MARCH - 2019

MGEN FLEMMING MATHIASSEN



XX

MND-NE
ELBLAG, POL
OCTOBER - 2021

BGEN ZENON BRZUSKO



XXX

MNC-NE
SZCZECIN, POL
NOVEMBER - 2021

LGEN JÜRGEN-JOACHIM VON SANDRART



XXX

ARRC
INNSWORTH, GBR
DECEMBER - 2021

LGEN NICHOLAS BORTON




XXX

1GNC
MÜNSTER, DEU
MARCH - 2022

LGEN NICO TAK



XXX

RRC-FRA
LILLE, FRA
AUGUST - 2022

LGEN EMMANUEL GAULIN



XXX

EUROCORPS
STRASBOURG, FRA
SEPTEMBER - 2021

LGEN PETER DEVOGELAERE



XXX

NRDC-ITA
SOLBIATE, ITA
MAY - 2022

LGEN LORENZO D'ADDARIO



XXX

NRDC-ESP
VALENCIA, ESP
JANUARY - 2020

LGEN FERNANDO GARCÍA-VAQUERO



LAND COMMAND



STRATEGIC, JOINT & SINGLE SERVICE COMMANDS



SHAPE

GEN CAVOLI
JUL - 2022



JFCBS

GEN MIGLIETTA
JUN - 2022



JFCNP

ADM MUNSCH
JUN - 2022



JFCNF

VADM DWYER
AUG - 2021



LANDCOM

GEN WILLIAMS
AUG - 2022



AIRCOM

GEN HECKER
JUN - 2022



MARCOM

VADM UTLEY
JAN - 2023



NSHQ

LGEN FLETCHER
OCT - 2021



MNC-SE

SIBIU, ROU
MARCH - 2022



MGEN DRAGOȘ-DUMITRU IACOB

NATO Force Integration Units



MND-SE

BUCHAREST, ROU
JUNE - 2022



BGEN DORIN TOMA



XX



MND-G

SZÉKESFEHÉRVÁR, HUN
AUGUST - 2020



MGEN DENIS TRETINJAK



NRDC-TUR

ISTANBUL, TUR
SEPTEMBER - 2021



LGEN LEVENT ERGÜN



NRDC-GRC

THESSALONIKI, GRC
JANUARY - 2023



LGEN PARIS KAPRAVELOS



LANDCOM

IZMIR, TUR
AUGUST - 2022



GEN DARRYL A. WILLIAMS

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF NATO'S LAND OPERATIONS

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LANDCOM G6 Enablement Branch Head

Artificial intelligence (AI) has rapidly become a major focus in the field of computer science, as it aims to develop intelligent machines that can perform human-like functions. Since its first exploration in the 1950s, AI has been applied in an expanding range of areas, from business and healthcare to education and entertainment. However, more recently, AI technologies have been increasingly adopted by militaries and defense organizations worldwide. AI systems can now match or even exceed human performance on tasks such as pattern analysis and decision-making, which were previously considered to require human intellect. As AI continues to become far more sophisticated and widely used, it is being investigated for critical defense applications, in which it could significantly affect military operations and effectiveness.

In general, the progress and rise of AI point to its enormous and growing potential to change society and armed conflict. In this article, we will explore the various application areas of AI in NATO's land operations while keeping in mind NATO's principles of defense and deterrence.

One of the primary areas of AI application in NATO's land operations is the development of autonomous systems. Autonomous systems can range from unmanned ground vehicles to drones and can be utilized in a wide range of activities, including reconnaissance, surveillance, and logistics. The use of autonomous systems in these activities can significantly reduce the risk to human life and can ensure that operations are carried out efficiently.

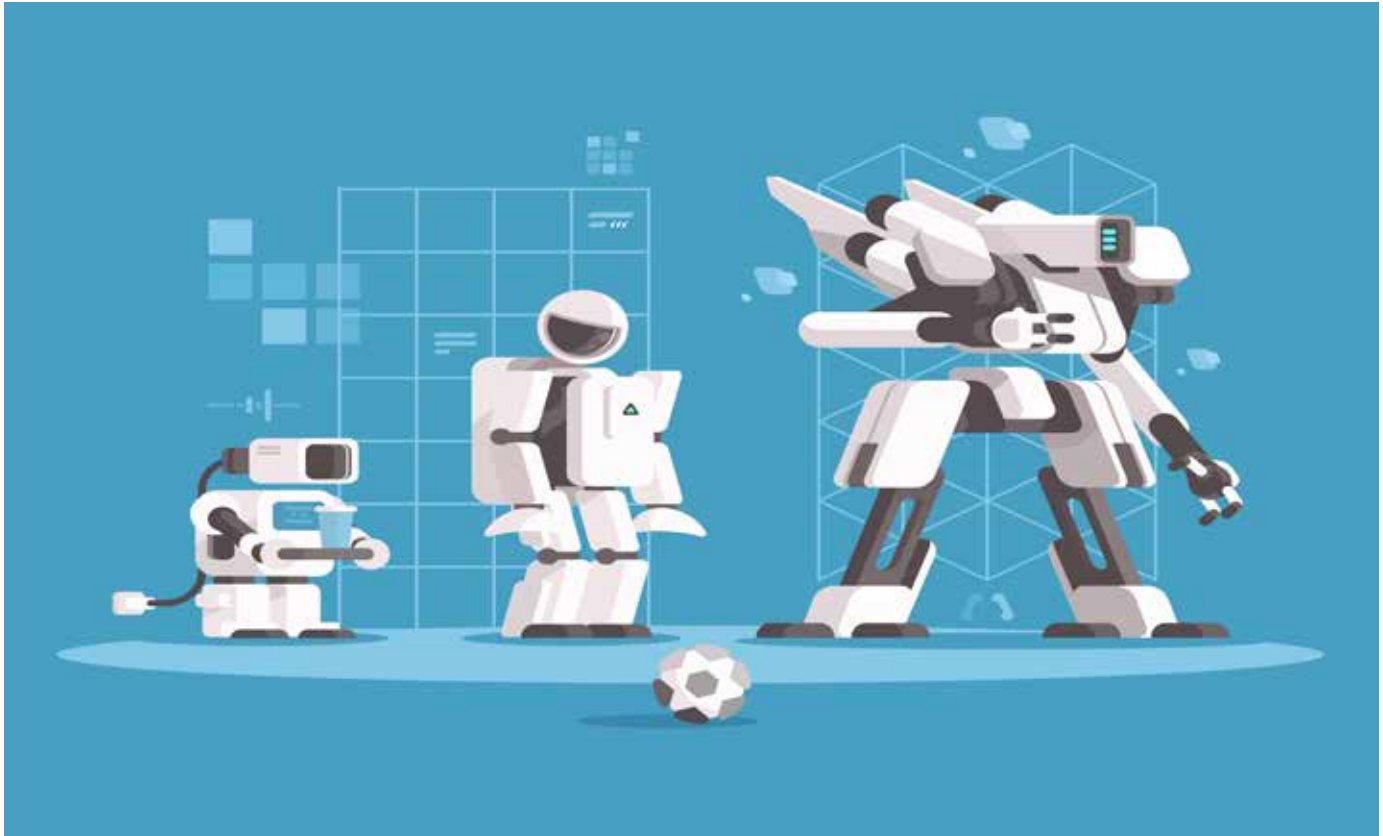


Figure 1: Metaphorical Picture of Robots' Evolution



Figure 2: Artificial Intelligence in Autonomous Systems

AI can be integrated into fire support systems to enhance their capabilities. For instance, AI can help analyze battlefield data and identify targets faster and more accurately than human operators. AI can also coordinate a series of fire support actions or switch between different weapons systems optimally based on the evolving combat situation. Using AI for perception, targeting, and coordination can speed up response times and increase the effectiveness of artillery, air strikes, and other fire support. However, this may also introduce risks related to human oversight, accountability, and the ability to verify AI decisions before lethal actions are taken.

Another area where AI can be utilized in NATO's land operations is situational awareness. AI technologies such as machine learning and computer vision can analyze large volumes of data from various sensors, including cameras, radars, and other sensors, to provide real-time situational awareness to troops on the ground. This can help NATO troops identify potential threats and respond quickly and effectively to changing situations on the battlefield.

AI can also be used to develop decision-making models for NATO's land operations. The decision-making process in military operations is complex and involves multiple factors, such as the availability of resources, risk assessment, and mission objectives. AI technologies can analyze these factors

and develop decision-making models that provide optimal solutions to complex problems in real-time. This can improve the effectiveness of NATO's decision-making processes and enable them to respond quickly and efficiently to changing circumstances on the battlefield.

Another application area of AI in NATO's land operations is the development of advanced training systems. AI-based training systems can simulate realistic scenarios and provide soldiers with the necessary skills and experience to handle complex situations on the battlefield. This can help ensure that NATO's troops are well-prepared for the challenges they may face on the battlefield.

Finally, AI can be used to support NATO's efforts in logistics. AI technologies can optimize supply chain management, reduce costs, and ensure that resources are allocated efficiently. This can help ensure that NATO's troops have the necessary supplies and equipment to carry out their missions effectively.

In addition to these areas, AI can also be used to improve the interoperability of land forces, facilitate the use of AI in defense systems, and identify opportunities for countries and groups to gain a better position in defense technology. Furthermore, AI can support NATO's efforts in deterrence and defense. **LC**

DELIVER MORE WITH LESS WORKFORCE

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MAJ (OF-3) LTU Army
LANDCOM G7 TREX Policy

The continuing war in Ukraine brings significant challenges, including the adaptation of our defense posture and an enhanced effort on our combat readiness. For years, Allied Land Command (LANDCOM) has championed "train as you fight" as the golden rule of our training, exercises, and evaluations. As a Land Component Command (LCC), we have trained to lead multiple Corps HQs in battle. As an advocate for the Land Domain, we have sponsored LOYAL LEDA (LOLE), an exercise that trains Warfighting Corps HQs in a post-Article 5 scenario. In addition, we have led NATO's Land evaluations and informed Supreme Allied Commander Europe (SACEUR) on NATO's Land Combat Readiness.

As NATO's advocate for the Land Domain and SACEUR's Land Domain adviser, one of LANDCOM's tasks is to ensure interoperability and standardization among NATO and partner nations' Land Forces. This means the national, multinational, and NATO structures must work together effectively to achieve Alliance objectives. Interoperability requirements have grown exponentially since the Cold War. Today, the changing and unpredictable security landscape has stressed the need for almost instantaneous multinational collaboration at lower echelons.

LANDCOM is the ideal HQ to synchronize land forces' activities

and exercises to achieve deterrence objectives. Current activities, such as Combat Readiness Evaluation (CREVAL) and the Land Corps Commander's Conference, have allowed LANDCOM to establish habitual relationships with The Graduated Readiness Forces (Land) (GRF(L)s), national armies, US Army Europe and Africa (USAREUR-AF), and partners. Near-daily contact with these entities allows LANDCOM to create a coherent and theater-wide view of the land domain from the tactical to the strategic level. The Alliance should capitalize on this by empowering LANDCOM to synchronize the posture, profile, and presence of land forces in support of the Joint Force Commanders (JFCs) and SACEUR.

Current training conferences primarily focus on de-conflicting training calendars or on detailed exercise planning. The Alliance should better use these conferences to link exercises to deterrence objectives and synchronize national exercises with NATO ones. This is more than simply de-conflicting training calendars. Training conferences should arrange exercises in time, space, and purpose to achieve effects and objectives in the exact same way an operational HQ plans a combat operation. Approached with an operational mindset, training conferences become the venue where exercises are crafted into tools of deterrence.





In an environment that continues to challenge our ability to train together and increase interoperability and readiness, the Combined Training Conference (CTC) plays an important role. De-conflicting training calendars, linking exercises to maximize deterrence objectives, and synchronizing NATO and national exercises remain highly necessary, and the CTC is the perfect venue for that.

LANDCOM and USAREUR-AF co-host the biannual CTC. Coordination of NATO and national Education, Training, Exercises, and Evaluation (ETEE) activity has become increasingly vital for multiple reasons. CTCs must be leveraged to the maximum to coordinate and link NATO and national training activity. LANDCOM views CTCs as an important part of our efforts to apply a Clearing House mechanism in the Land domain, creating mutual awareness of available training opportunities and national capabilities. CTC is one such conference in a training and exercise cycle that includes two Combined Training Conferences per year. Historically, more than 300 participants from NATO Command Structure (NCS), NATO Force Structure (NFS), NATO nations, and PfP partners are present, clearly demonstrating the importance and attention this training coordination venue attracts from across the training community. This venue is of vital importance to the training community since it provides an excellent opportunity to meet counterparts from all entities within NATO and PfP nations, share exercise programs, build common situational awareness, and find synchronization solutions for major training events.

Training of national forces to NATO standards will remain the responsibility of individual nations. However, we must train together as much as possible to enhance interoperability, and every effort needs to be made to synchronize and coordinate NATO and national training and exercises.

- **Engagement with the nations' armies:** LANDCOM has occasional relations with some nations, principally through GRF(L)s, but engagement with all Alliance nations remains varied and ad hoc at best. A more formal approach, with a clearly defined lead, would allow for greater visibility of planning, training, and activity in the Land Domain and a more realistic understanding of how to maximize key capabilities and shortfalls, such as fires, combat engineering, tactical CIS, and enablers.

- **Synchronization with national exercises:** NATO and national exercises send a strong deterrence signal and support overall force readiness. However, many national exercises have little to no NATO involvement. This is a missed opportunity for the Alliance to better use training and exercise (TREX) as a tool for deterrence. The Alliance should intentionally link national exercises with NATO activities. At a minimum, the Alliance and national armies should synchronize their strategic communications (STRATCOM) messaging.
- **Aligning exercises to deterrence and defence of Euro-Atlantic area (DDA):** Currently, training and evaluation objectives are the primary drivers of exercise design, and training conferences focus on de-conflicting training calendars and training areas. LANDCOM proposes that the DDA's deterrence objectives assume the primary focus when scheduling exercises, while sustaining their attractiveness and utility to Allies and Partners. This process would link tactical exercises in time, space, and purpose to achieve strategic effects, just as operational commanders link tactical actions in time, space, and purpose to achieve strategic objectives in conflict. It would also provide a framework to synchronize national exercises with NATO objectives.

The relationship between LANDCOM and USAREUR-AF is growing in importance. We have seen more integrated activity. This year, USAREUR-AF and LANDCOM staff during CTC will generate a common understanding of current training and exercise ambition and disseminate accurate knowledge of major NATO and national/multinational exercises and training opportunities. During the conference, nations and NATO organizations promote multinational exercises, raise exercise opportunities, and make offers to support multinational training and exercises. Participants establish points of contact that will enable future planning and interaction. This will set the conditions for increasing the importance of the alignment of the exercises in the near future. **LC**

A PILLAR OF PARTNERSHIP INSIDE THE COOPERATIVE SECURITY NATO CORE TASK

Tore S. Bade
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LANDCOM G9 MilCoop Branch Head

At the 2022 Madrid Summit, NATO adopted its new Strategic Concept. This key document reaffirms NATO's values, purpose, and tasks. It provides a collective assessment of the security challenges facing the Alliance and outlines the political and military tasks NATO will carry out to address them. NATO's three core tasks are deterrence and defense; crisis prevention and management; and cooperative security.

Threats like terrorism, piracy, the proliferation of weapons of mass destruction, and cyber warfare know no borders. That is why NATO has developed a global network of security partners that includes over 39 countries from around the world, as well as international organizations, including the United Nations, the European Union, the Organization for Security and Cooperation in Europe (OSCE), and the African Union. Besides partners taking part in NATO missions and operations, the Alliance has developed a wide network of partnerships since the early 1990s, including the Euro-Atlantic Partnerships Council, the Mediterranean Dialogue, the Istanbul Cooperation Initiative, and many partners across the globe, including Australia, Japan, Colombia, and South Korea.

One cornerstone of LANDCOM Military Cooperation, in addition to NATO's arguably flagship program, the Operational Capabilities Concept Evaluation and Feedback (OCC E&F) and LANDCOM's Mobile Training Team (MTT) Program, is LANDCOM's Land Staff Talks format. Staff Talks between NATO and selected NATO Partner Nations are annual or biennial and are usually held between IMS/SHAPE and the Partner nation. An important addition to these staff talks is Component Command Staff Talks. As advocates of the land domain, LANDCOM was tasked by SHAPE in 2016 to expand cooperation with Ukraine and to host the first round of LANDCOM Land Staff Talks (LST) in 2017.

In 2018, similar initiatives were established with two additional prioritized NATO Partners: Georgia and Jordan. A Memorandum of Understanding was subsequently signed with Georgia, and LSTs with Georgia have provided significant utility and were a direct reason for LANDCOM receiving a GEO Partner Staff Post. Given the success of the Land Staff Talks, in May 2022, LANDCOM is now planning to initiate an additional LST format with Moldova.



LST with Ukraine

LANDCOM held two sessions of LST with Ukraine: 13-14 February 2018 in Izmir, Turkey, and 05-08 July 2021 in Kyiv, Ukraine.

In 2018, the aim and scope of the staff meeting were to identify possibilities and improvements for further interaction and cooperation between the respective Land Headquarters.

The briefings provided by LANDCOM and Ukraine Land Forces Command (ULFC) were an excellent opportunity to increase mutual knowledge and understanding further. The main topics of the Ukraine briefings were the present structure, the main tasks, and the ongoing transformation of the Ukraine land forces.

In 2021, the LST was combined with a COM LANDCOM Key Leader Engagement (KLE) at the DV Day of EXER SEA BREEZE 04 JUL 2021 in Odesa. COM and COS LANDCOM partially participated in the staff talks and in some KLE events outside the staff talk's agenda.

The staff talk's topics revealed the status of the Ukraine defense reform, NATO-Ukraine partnership, the situation in Eastern Ukraine, further strengthening dialogue and cooperation to address security challenges in several areas of shared concern, and the Ukraine desire to implement the OCC E&F structure in Ukraine LFC down to the units and syndicate work at the end.

If the situation allows, LANDCOM is now planning to engage with Ukraine for Land Staff talks in the autumn of 2023.



LST with Moldova

Moldova is LANDCOM's first option for LST after Ukraine, and the first iteration could be this autumn if Ukraine will not be able to attend or in the spring of 2024.

Moldova has informally expressed willingness to be part of these types of discussions whenever possible. Probable topics of discussions can be a new eDCB package for Moldova and LANDCOM's possible support (the roadmap that must be followed to reach the number of six Infantry Battalions inside the OCC E&F Pool of Forces Programme), OCC E&F events led and MTTs conducted by LANDCOM, allocation of seats for CREVAL courses organized by SHAPE J7 with LANDCOM instructors' support, and syndicate work.

In conclusion, the Land Staff Talks program is an essential pillar of partnership within the Cooperative Security NATO Core Task. Through this program, NATO and its partner nations can exchange information, identify opportunities for further interaction, and improve cooperation in areas of shared concern. The success of the Land Staff Talks with Ukraine, Georgia, and other partner nations has shown the value of this initiative in promoting mutual understanding and advancing NATO's mission. As NATO continues to face complex security challenges, the Land Staff Talks program will undoubtedly play an increasingly critical role in strengthen the Alliance's partnerships and enhance NATO's collective defense capabilities. **LC**



LST with Georgia

LANDCOM has conducted three iterations of LSTs with Georgia: 26-27 February 2019 in Izmir, Turkey, 01-02 September 2020 in Tbilisi, Georgia, and 10-13 May 2022 in Izmir, Turkey.

The main points of agreement were to continue mentoring the NATO Georgia Exercise every three years, continuing the ongoing OCC E&F process for Georgia Forces declared to the NATO pool of forces (two Infantry Companies), participation in NATO exercises and LANDCOM-sponsored exercises open to partner nations. Also, Georgia MTT requests were discussed during the LST, with LANDCOM providing updates about the possibilities of fulfilling training gaps.

The next possible round of LSTs may be held in the autumn of 2024 or the spring of 2025 in Tbilisi, as hosting the LSTs is usually done on rotation.

HEADQUARTERS MULTINATIONAL CORPS SOUTH-EAST ASSESSMENT 2022

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Throughout 2022, Allied Land Command (LANDCOM) conducted an assessment of Multinational Corps South-East (HQ MNC-SE) to support their certification as a regionally-focused Warfighting Corps Headquarters. The goal was to enhance their Command and Control (C2) capabilities, readiness, and responsiveness in the South-Eastern flank of the Alliance.

The assessment process was based on the Combat Readiness Evaluation (CREVAL) program, which was recently enhanced to enable thorough evaluations and provide consistent feedback to SACEUR and Commanders on evaluated organizations' readiness and interoperability levels. The CREVAL system confirms that declared forces and capabilities are ready and prepared to meet current and contingent NATO operational priorities in accordance with NATO standards. It also supports Land Forces

Headquarters and Units in their preparation for planning and executing operations. CREVAL uses LANDCOM talents and expertise to enhance the evaluated Headquarters' capabilities through engaged partnership.

The assessment was conducted during Exercise Carpathian Flow 2022 (CAFL22) and Exercise Loyal Leda 2022 (LOLE22) by a 25-person team provided by LANDCOM. The team verified the Corps Headquarters' level of performance and compliance with NATO standards.





Exercise Carpathian Flow 2022 (CAFL22, 31 OCT - 04 NOV 2022) provided the venue for Multinational Corps South-East to train on conducting and coordinating Reception, Staging, and Onward Movement (RSOM) operations into Bulgaria (BGR) and Romania (ROU). The Corps also acted as the Single Point of Contact for Host Nation issues for both BGR and ROU, forming the interface between National and NATO Commands. Multinational Corps South-East demonstrated its ability to enhance responsiveness in the Black Sea Region by synchronizing NATO Force Structure (NFS) entities' deployment and operational arrangements with local and regional actors.

Exercise Loyal Leda 2022 (LOLE22, 30 NOV - 09 DEC 2022) was a complex and demanding Command Post Exercise (CPX) / Computer Assisted Exercise (CAX) sponsored by LANDCOM. Its aim was to train and evaluate specific NATO Force Structure Headquarters over high-intensity tactical-level warfighting scenarios.

LOLE22 served as the primary venue for Multinational Corps South-East to demonstrate their operational capability. The exercise enabled the Corps to train in the planning and execution of an Article 5 Major Joint Operation against a peer adversary.

During LOLE22, Multinational Corps South-East conducted high-intensity operations against a peer adversary in the Land domain in a Joint environment and trained on exercising Command and Control (C2) over assigned Headquarters and Units. Multinational Corps South-East thoroughly tested and verified their operating concepts, procedures, and capabilities, validating the decision-making process in complex and high-intensity operational environments.

The Corps clearly demonstrated readiness in their designated role and proved their ability to plan and conduct combat operations according to NATO standards in the context of high-intensity scenarios. Multinational Corps South-East showed that they are well-trained, interoperable, and operationally ready for combat, supporting NATO's operational needs in the Southeastern flank of the Alliance.

During the two training events, Multinational Corps South-East worked together with Subject Matter Experts from LANDCOM, Allied Rapid Reaction Corps, United States Army V Corps, Joint Logistic Support Group Naples (JLSGNP), Multinational Division South-East, NATO Force Integration Units from Romania and Bulgaria, Joint Force Training Center, and Romanian Ministry of Defense structures. One of the most important outcomes is a high level of interoperability across the Alliance.

Multinational Corps South-East emphasizes Romania's contribution to developing a new regionally-focused Corps headquarters that builds more readiness and enhances NATO capabilities on the Eastern flank. Multinational Corps South-East increases the Alliance's deterrence and defense posture and demonstrates that NATO is ready to handle complex and dynamic operational environments.

On January 20, 2023, Multinational Corps South-East assumed the command and control of NATO Land Forces deployed in Bulgaria and Romania, including Headquarters Multinational Division South East: HQ MND-SE, NATO Force Integration Unit Bulgaria, and NATO Force Integration Unit Romania. **LC**

NAVIGATING A CONTESTED SPACE ENVIRONMENT: BEST PRACTICES FOR NATO GROUND FORCES

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In the more than 14 months since the intensification of the Russian invasion of Ukraine, Russia has displayed a robust counter-space weapons inventory and a willingness to use it to achieve tactical and strategic goals. Russia's military has employed an array of capabilities, from jamming to electronic warfare, against Ukrainian space-based systems. This was demonstrated when Russia disrupted internet services in Europe with a cyberattack on Viasat's KA-SAT before it invaded Ukraine.

The US Army's Training and Doctrine Command (TRADOC) and US Army Combined Arms Center (USACAC) Center for Army Lessons Learned (CALL) publication, Handbook Operating in a Denied, Degraded, and Disrupted Space Operational Environment (D3SOE), supports NATO's efforts to reduce the impact of Russia's robust counter-space inventory. "The collaboratively produced handbook will give the warfighter techniques and strategies to successfully operate in a denied, degraded, and disrupted Space Operational Environment." The handbook suggests Russia's ability to deny, degrade, and/or disrupt the space operational environment. Therefore, this

necessitates NATO's requirement to train warfighting corps to navigate by compass and analog map, communicate by line of sight, and reduce its reliance on space-based capabilities. However, NATO must consider and plan for the degradation of precision-guided munitions, limited communications, and navigation errors in the location of units. This D3SOE Handbook provides NATO with a way to prepare, recognize, react, and report a degraded space environment.

NATO Ground Force Mitigation Techniques

It is imperative for ground forces across NATO to expect to operate in a denied, degraded, and disrupted Space Operational Environment. The US D3SOE Handbook has identified best practices for land forces to counter adversary counter-space systems. The basis of the report highlights ground forces to prepare, recognize, react, and report enemy degradation of the Space Operational Environment.

Best Practices	(D3SOE Handbook)	Details
Prepare	Train in normal and contested space operational environments, with and without the use of space-enable assets.	Corps and below STAFFEX, TTX, CPX, and field exercises training to operate in a D3SOE. Navigation, Communications, targeting and collection tasks.
Recognize	Know what a D3SOE looks like (Recognize Electromagnetic Interference).	Training units to identify enemy counter-space capabilities and what they do to inhibit NATO's ability to move shoot and communicate.
React	Take all appropriate steps to mitigate the effects of a D3SOE (React to EMI).	Take appropriate action to mitigate and reduce the effects of counter-space capabilities.
Report	Inform interested parties of suspected EMI to maintain situational awareness at all levels.	After contact with enemy counter-space assets. Report utilizing the MIJWARNREP (Meaconing, Intrusion, Jamming, and Interference Warning Report). This will contribute commander's common operating picture and add to the collection plan and fires targeting plan (details below).

Table 1: HANDBOOK Number 18-28 June 2018: Operating in a Denied, Degraded, and Disrupted Space Operational Environment

Mitigation techniques for communications and navigation, and reducing reliance on space-based capabilities, are essential to winning the fight. Preparation, recognition, reaction, and reporting are key to mission success and apply to space fights. Tactical ground units must train to operate in a contested space environment during the preparation phase. Recognition involves knowing what electromagnetic interference looks like, while reacting entails mitigating the effects of enemy counter-space weapons. Reporting interference and degradation of space capabilities assists in the collection and targeting process to eliminate weapons from the battle space.

During the preparation phase, training echelons, from corps to companies, will involve basic military drills, navigation by map and compass, body shielding procedures, and communications encryption procedures. More advanced training includes recognizing what jamming on Satellite Communications (SATCOM) and GPS systems looks like and how to react to mitigate the jamming. Finally, reporting the detected jamming by utilizing the Meaconing, Intrusion, Jamming, and Interference Warning Report (MIJIWARNREP) and informing higher and lower echelon units of the jamming and interference assists in intelligence collection and targeting of cells to locate and neutralize enemy counter-space systems from the battlefield. The MIJIWARNREP can be utilized to identify the source of interference and provide details to collection planning and target lists to neutralize the source.

The MIJIWARNREP should include or detail the following information below:

Line 1-Date and Time of Report	Date Time Group (DTG)
Line 2-Unit	Unit making report
Line 3-Interference	Strength and characteristics of interference
Line 4-Location	UTM or six-digit grid coordinate
Line 5-On Time	Start of interference (DTG)
Line 6-Off Time	End of interference (DTG)
Line 7-Effects	Operations or equipment affected
Line 8-Frequency	Frequency or frequency range interference impacted operations or equipment
Line 9-Narrative	Additional information required for clarification

Table 2: Handbook Number 18-28 June 2018: Operating in a Denied, Degraded, and Disrupted Space Operational Environment

Neutralizing adversary counter-space systems is essential to ensure freedom of access to space capabilities. Ukrainian forces recently demonstrated the importance of collecting, targeting, and destroying these systems. In March 2023, Ukrainian aerial reconnaissance officers launched a Leleka drone over the occupied part of the Kherson region and discovered several electronic warfare systems located in one of the settlements. A group of the Armed Forces of Ukraine called "Lesniki" (Foresters) launched precision artillery strikes at the specified coordinates,

destroying enemy equipment. This showcases the importance of neutralizing these counter-space weapon systems utilized by Russian Ground Forces to protect valuable infrastructure from attacks. Allied ground forces can target these systems, opening up airspace and freedom of movement using organic collection and targeting assets. This will lead to the success of controlling and dominating the space environment.

Battlefield mitigation is one of the methods to operate in a contested, denied, degraded, and disrupted space operation environment. Without space-based capabilities, commanders from company to corps are inhibited to move, shoot, and communicate. "Space capabilities must be thoroughly integrated into every aspect of joint planning long before operations begin. Lack of integration increases the fog and friction of war." Armies that have ensured freedom of access to space and space-based capabilities will hold the edge over their adversaries. Timely access is vital to continued operations, and commanders lose detailed battlefield situational awareness. UASs are limited to line-of-sight command and control, and unmanned aerial ISR relies on ground troops and reconnaissance elements, putting them within range of enemy weapon systems. Friendly force tracking is inaccurate or negated in a GPS-degraded environment, precision-guided munitions are degraded and will, therefore, require inertial navigation systems (INS) and laser-guided or unguided munitions. SATCOM of forward units to rear echelon commanders are reduced and become reliant on secondary and tertiary communication architecture.

Russia's actions in Ukraine demonstrate that they are not only aware of their adversaries' vulnerabilities but also have an array of counter systems capable of interfering with many, if not all of them. So, what is NATO doing to reduce its vulnerability to Russia's counter-space-based systems? In part, NATO has instituted new training objectives and exercise injects that emphasize operating in an operational environment either without space-based systems or with ones whose capabilities are severely reduced.

NATO training and exercises

To effectively move, shoot, and communicate, the NATO Alliance must train ground units from the corps to the companies on current enemy counter-space weapon systems and mitigation techniques. Armies can operate and move without space capabilities, but the tempo slows down, and the enemy will exploit the opportunity to fix, find and destroy NATO allied ground units. Ground forces must be prepared to operate in conditions of a denied, degraded, and disrupted space domain.

NATO declared Space an operational domain in December 2019 and established the NATO Space Center at Allied Air Command (AIRCOM), collocated with the Combined Forces Air Component Commander (CFACC). The CFACC is dual-hatted as the NATO Combined Forces Space Component Commander (CFSCC), managing all Space operations for Supreme Allied Commander Europe (SACEUR). The NATO Space Centre's mission is to coordinate Allied Space activities, support NATO activities and operations and help protect Allied space systems by sharing information about potential threats. The NATO Space Centre processes space support requests for NATO space products for ground unit operations and exercises for operational headquarters and tactical units.

Integrating Space Operation planning, activities, and requests for support during NATO exercises impact the readiness of NATO's Warfighting Corps. Corps must prepare their headquarters and their assigned formations to operate in a contested space environment. Since it is a matter of when, not if, the enemy denies, degrades, or disrupts our space capabilities, it is imperative that NATO trains to operate in a degraded space operations environment before exercises and operations. NATO has integrated counter-space operations into several exercises, simulating a degraded space environment. NATO units are expected to employ mitigation techniques for communications and navigation and reduce their reliance on space-based capabilities.

Russia's success in countering space-based systems raises concerns regarding NATO ground forces' reliance on such systems. NATO ground forces rely on GPS-enabled Precision Guided Munitions (PGMs), Satellite Communications (SATCOM) for beyond line-of-sight communications, and Unmanned Aerial Systems (UAS) for overhead Intelligence, Surveillance, and Reconnaissance (ISR). Should any of these systems be disrupted, it would adversely impact NATO operations.

Russia has already employed GPS Jamming to significant effect. In 2022, Russia jammed the GPS signal in the Black Sea, which disrupted civilian flights in and out of Finland. According to The Guardian, "Lithuanian airline Transaviabaltika said it had been forced to cancel 18 flights between Helsinki and Savonlinna in eastern Finland after the lack of GPS made it impossible to land because Savonlinna airport does not have alternative navigation equipment." Russia's ability to disrupt GPS is just the tip of their counter-space capability.

Russian current counter-space weapon systems include GPS jammers, ISR jammers, and SATCOM jammers. The R-330ZH Zhitel is a Russian EW system designed to interfere with GPS navigation systems, SATCOM, and cellular service. The Pole-21E electronic warfare system complex is designed to protect strategic, operational, and tactical assets from NATO weapon systems reliant on the GPS and Galileo signals. The Pole-21E system interferes with GPS satellite signals and is employed over a wide area to maximize coverage and protection of assets. The Krashuka-4 is designed to jam satellite signals, surveillance radar, and radar-guided weapons. The Borisoglebsk-2 interferes with drone guidance systems and radio-controlled landmines.

Conclusion:

Russia's counter-space activities demonstrate their ability to degrade and deny Ukrainians the use of assets. However, Ukraine has shown resilience in targeting and neutralizing these systems. Given the reliance on space systems for tactical and operational efficiency, it is necessary for NATO to train mitigation strategies and prioritize Russian counter-space systems in the targeting process. This will allow them to succeed in the battle space environment. NATO has recognized the threat posed by Russia's counter-space capabilities and is moving to reduce its capabilities through training and exercises. **LC**





R-330ZH ZHITEL ECW SIGNAL JAMMER, SIDE VIEW WHILE PARKED AT A MILITARY EXHIBITION (SOURCE: WIKIPEDIA)



R-330ZH ZHITEL ECW SIGNAL JAMMER, DEPLOYED ON EXERCISES (SOURCE: WIKIPEDIA)

AFS VOL VII: A GAME-CHANGER FOR NATO LAND EVALUATIONS

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The new AFS Vol VII, scheduled to be released in 2023, will dramatically increase the overall quality of NATO Land Evaluations. The three areas of the new Vol VII that have seen the most advancement are the following: 1) The new Vol VII makes major inroads into reducing conflicts of interest, which we believe will lead to more honest assessments overall. 2) It institutionalizes inclusivity in both individual teams and with the overall program. 3) It drastically increases the quality of the evaluation criteria. These three lines of effort make the new AFS Vol VII a significant advancement and the most comprehensive tool for understanding our Alliance's true readiness.

One of the major goals of the new Vol VII was to institutionalize the concepts of transparency, impartiality, and create checks on potential conflicts of interest. We did this by first including all three items as principles of every evaluation. We believe that transparency and impartiality are linked. If you want to have a fair evaluation, you need to be completely 100% transparent about the process and findings every step of the journey so that evaluated HQ/Units know how the outcomes developed over

time. We encourage all evaluation teams to allow evaluated HQ/Units into all aspects of the evaluation, not as contributing members, but to see that the system is fair.

Also, this will build trust between the evaluation teams and the evaluated HQ/Units. Addressing conflicts of interest was paramount to the new Vol VII. It is only through honest evaluations, free of outside national, political, or personal interests, that the Alliance can truly understand both our strengths and weaknesses. So, the new Vol VII recommends that ETC be of the same rank or higher than the commander of the Evaluated HQ and not of the same nation. Likewise, with the NATO Senior monitors. This rank requirement will minimize the influence of rank in the process. Ensuring ETCs and Monitors are of different nations will ensure no national dynamics will taint the outcomes of the evaluation. Enshrining these considerations into the new Vol VII, we hope will lead to more honest and quality findings in all evaluations as the demand for evaluations continues to rise. With an increase in annual evaluations due to the current operational environment, there is a need to find new ways to meet the demand.





Historically, all evaluations were coordinated and driven from LANDCOM. This is no longer possible with the increased OPTEMPO of the Alliance, and it does not account for the incredible evaluation professionals the Alliance has at all levels. So, we had to diversify our evaluation responsibility framework. First, we expanded the mutual support concept to include more NFS SMEs. This will essentially make every Corps Evaluation Team 50% LANDCOM personnel and 50% NFC/NCS personnel. These personnel, in reality, are much more fluent in the struggles at the Corps high Tactical level. Secondly, we recommended that NFS Corps take up the responsibility of evaluating NFS Divs. It is our view that NATO HQs can provide better expertise on NATO processes, procedures, and challenges than National Evaluation Teams. Finally, we recommend that all monitoring responsibility for lower-level evaluations be held at the NFS level within the boundaries of each nation. These changes, we believe, will create a system that can meet the demand for increased evaluations and provide the appropriate oversight and quality.

But the quality of all evaluations starts with the quality of the evaluation standards, which we have improved in the new AFS.

The quality of the overall criteria has been significantly elevated. No longer are the criteria direct translations of AFS Vol II requirements. All requirements were studied, discussed, and the

outcome was a set of criteria that better reflects all evaluable dynamics of each requirement. Some requirements might have one criterion, while some might have five. Regardless, rest assured that each criterion will lead to a better understanding of the full capability of the evaluated HQ.

Secondly, the unit-level criteria have been enhanced to cover most types available in Vol II. This will increase the number and types of evaluations that this Vol VII can be used for, as well as make it more useful for partner nations and the Operational Capabilities Concept (OCC) program.

The new Vol VII is not a perfect document. Over time, it may not age well, as most things do. However, we thought it was critical to ensure the strength of our Alliance by making sure we have a tool that can meet the current demands of the operational environment the Alliance finds itself in. We thought it was crucial to address the increase in conflict by making all evaluations more fair, transparent, and free of non-readiness-related concerns. To meet the increasing demand for evaluations and leverage the tremendous talent available in the Alliance, we needed to reimagine who is doing all evaluations. Finally, we knew that to make a foundational change in quality, we had to increase the quality of the criteria. If the new Vol VII is approved, we believe our evaluation program will be fit for purpose to show us our true readiness. **LC**

From Vision to Reality: Redefining NATO's Military Engineering with Consensus, Faith and Bold Solutions

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In these uncertain times, with Ukraine and Russia dominating the headlines and causing NATO to rethink paradigms and relearn lessons that were once norms, the world of Military Engineering (MILENG) is not so different. As a career military engineer with a degree in Theology and a Master's in Knowledge Engineering, I have found that both these degrees have prepared me perfectly for my role as a military engineer in NATO. My Master's degree taught me about building frameworks and connecting the dots, while my degree in Theology instilled in me the importance of building consensus and having faith that those dots will come together - much like NATO itself.

Currently, the NATO MILENG journey is bustling with activity. The framework is being constructed, and the production line is eager to begin. Within LANDCOM GENG, as part of the broader MILENG community, we utilize the MILENG Centre of Excellence (COE) as a platform to train new NATO members and host conferences that shape the dialogue surrounding our

NATO MILENG journey. The key to achieving consensus is using a language that is understood by all.



Two mandatory courses offered by the MILENG COE are the NATO Operational Military Engineer and the NATO Tactical Military Engineer Courses, which provide essential knowledge of the roles, responsibilities, and staffing procedures of MILENG staff elements in operational and tactical headquarters. When we all speak the NATO MILENG language, our ability to attend conferences and communicate with a shared understanding is greatly improved. The MILENG COE plays a crucial role in facilitating these courses.

As part of LANDCOM GENG, we participate annually in a series of MILENG Working Groups (WGs) and conferences aimed at discussing and transforming identified engineering challenges into practical and interoperable solutions. In October, the NATO Senior Joint Engineers' Conference (NSJEC), the senior advisory body for MILENG in NATO, convened in Warsaw.

During this conference, LANDCOM ACOS GENG and I had the opportunity to learn from the experiences of senior NATO and National MILENG Representatives, gaining insights into the key challenges, hurdles, and innovative ideas currently being faced by the MILENG community. The outcome of the conference provided direction and a framework to enhance the overall MILENG capability of the Alliance, recommending the development of sustainable solutions to address identified gaps in MILENG capabilities.

The resulting recommendations have guided the work program of the Military Committee Land Standardization Board, as well as other MILENG-related working groups, Centres of Excellence (COE), NATO HQ, Commands, and member nations. Several working groups and sub-committees have been formed to develop options to address these priority requirements. In November, LANDCOM GENG participated in the Environmental Protection and Information Management WGs, followed by the MILENG COE Information Exchange Seminar (IES) at the German Army Engineer School in Ingolstadt in December.

Recently, the NATO Engineer Working Group (NSJEC) organized a Mobility Seminar in Ingolstadt, Germany, with a specific focus on the importance of counter-mobility (C-MOB) solutions. The seminar served as a platform for 120 NATO representatives, academia experts, and industry partners to come together and share their expertise in various mobility-related fields, including Wide Wet Gap Crossing, C-MOB, Survivability, Training, and General Engineering Support.

Throughout the seminar, participants engaged in syndicate work, encouraging open and innovative thinking to gather valuable insights on how the MILENG community can effectively deliver C-MOB solutions in the near and medium term. By fostering collaboration and knowledge exchange, the seminar aimed to identify practical strategies and approaches that can enhance NATO's capabilities in countering mobility threats.



At the conclusion of the seminar, a comprehensive Food for Thought paper was produced. This document provided a summary of the key takeaways from the three-day event, emphasizing the crucial role of advancements in technology and equipment in addressing counter-mobility challenges. It also underscored the significance of integrating MILENG advice into the targeting cycle, the need for both civil and military engagement, and the importance of maximizing Intelligence, Surveillance, and Reconnaissance capabilities, particularly in the field of Geomatics, when formulating effective C-MOB plans.

Furthermore, in February 2023, myself and two colleagues from LANDCOM GENG had the privilege of attending the first of two MILENG working groups. These working groups aimed to translate the recommendations set forth by the NSJEC into tangible solutions that could improve military engineering capabilities within the NATO capability development framework. The discussions within the working group encompassed various facets of Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, and Interoperability domains, with a particular focus on integrating comprehensive and sustainable MILENG capabilities. Notable

progress was achieved, especially in the areas of counter-mobility, standardization, doctrine, and mobility.





In addition to these engagements, LANDCOM GENG also played host to an Energy Security Seminar on behalf of SHAPE in March 2023. Furthermore, we are looking forward to hosting the NATO Land Engineer conference in Izmir in May 2023. Despite being a small division consisting of only 12 personnel, LANDCOM GENG is actively involved in various responsibilities. This includes fulfilling the multi-year task of serving as Protect Area-Leads for four Corps level Combat Readiness Evaluations and acting as key providers of LANDCOM liaison officers in support of NATO's Response to Russian Aggression – Ukraine. Additionally, we contribute to the development of concepts and the drafting of Land Coordination Orders, aligning with SACEUR's ambition to enhance NATO's Land Forward Presence. Our division is redefining itself to function as both a strategic Combined Force and a tactical Multi-Corps Land Component. We are

actively engaged in shaping future operational and training plans, providing support for the development of military vital infrastructure plans across Europe, and offering assistance through Counter Improvised Explosive Device Mobile Training Teams and Operations Capabilities Concept programs to NATO Partner Nations worldwide.

In this dynamic and active environment, the MILENG framework continues to take shape. The dots are gradually coming into sharp focus, and the lines that connect them are starting to emerge. All we need now is to maintain faith and confidence in our collective efforts. **LC**

LAND POWER



MAGAZINE

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