



Contested Logistics

Who's in Charge?

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Contested Logistics: Depth and Breadth, A Framework of the Willing?

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Preface

At the time this White Paper was written; Ukraine was attacking deep into Russian C2 and industrial supply chains through drone warfare. In addition, Ukraine successfully protected sea lanes in the Black Sea to allow increased grain exports, while the U.S. and their allies were attacking Yemenis Houthis' power projections platforms and supply locations to ward off Houthis' attacks on surface commerce in the Red Sea.

The Peer Competitors of the United States have a desire to win without ever fighting on a battlefield, in the air or at sea. They know that attacks on Logistic Supply Chains, Power Projection Platforms, Infrastructure, Sea Lanes and U.S. Industry will provide them enough time to gain a competitive advantage in the next fight.

One could make an argument that the U.S. is currently in a conflict phase and no longer in a competition phase regarding strategic logistics in the U.S. Homeland. Cyber Attacks on the Colonial Pipeline and Maersk, kinetic shots fired on transformer stations, tanker trucks on fire in underpasses closing major interstate ground lines of communication, and spy balloons floating across the homeland indicate how vulnerable the U.S. is to make it to the next fight in time.

Two decades of regional conflict in which the U.S. relied on uncontested strategic reach and contract logistics have created a generational gap of experience in projecting, protecting, and fighting in multi-domain operations at the Corps, Theater, Fleet and Numbered Air Force levels. If our next Peer to Peer Conflict over contested regional influence in the Pacific takes place by 2027, 15-year modernization plans for the Organic Industrial Base will be late to need. "Freedom's Forge" tells the story of how U.S. business leaders were mobilized to build ships, tanks, and weapons faster and better than the enemy to win World War II. Arthur Herman, the author of "Freedom's Forge," wrote in reference to Defense Industry Leadership, "Their foes weren't German or Japanese soldiers but Washington politicians and bureaucrats, shrill journalists, military martinets, the denizens of Big Labor as well as Big Government — and sometimes the forces of blind date."

This White Paper is designed to provoke thought about contested logistics. It reviews unclassified sources to assimilate questions that may or may not be answered in a classified setting. This may be part of the problem. Industry, state, local, interagency, allies and partners need to understand how to make the contested, uncontested.

1.0 Contested Logistics Framework, Who is in charge? Everyone, In Some Cases No One

When ChatGPT 3.5 is asked, “Create a 4-5 sentence paragraph that describes the United States Department of Defense Concept of Contested Logistics”, the answer is as follows:

“The United States Department of Defense Concept of Contested Logistics is a strategic framework designed to address the evolving challenges and threats associated with modern warfare. This concept recognizes that logistical operations, crucial for sustaining military forces, are increasingly vulnerable to disruptions in contested environments. It emphasizes the need for adaptive and resilient logistics capabilities that can function effectively in the face of adversarial actions, such as cyber-attacks, electronic warfare, and physical interference with supply chains. The concept underscores the importance of integrating advanced technologies, data analytics, and rapid decision-making processes to enhance the military's logistical agility and reduce vulnerabilities in contested operational theaters. By prioritizing innovation and flexibility in logistics planning and execution, the Department of Defense aims to ensure the sustained and reliable support of military operations in complex and dynamic environments.”

This is not a bad answer, but further review of DoD Services’ definitions, Joint Publication definitions, and DoD Instruction definitions finds the complexity of the holistic description more like a tapestry than a single definition for Contested Logistics. A framework may be the best way to understand the interconnection of this tapestry. The authors have attempted to provide a holistic Contested Logistics Framework just below.

This framework reflects the perspective from Strategic to the forward point of conflict. It includes the perspective of Contested Logistics taking place in the homeland at the Strategic, Operational and Tactical levels. Likewise, Contested Logistics will take place at the Strategic, Operational and Tactical levels outside of the homeland where there will be more Operational and Tactical contested environments. The most comprehensive perspective is found in the diversity where contested environments and logistics coexist.

This paper identifies this diversity and explores how OSD, the Joint Staff, and DoD Services have tackled what has been identified as a weakness in a contested environment. U.S. National Security must now pay attention to Logistics, Sustainment, Power Projection and Distribution. After 20 years, there is now atrophy of this capability, and two generations of military leaders have operated in regional conflicts where Strategic, Operational and Tactical Logistics, Sustainment, Power Projection and Distribution enjoyed freedom of movement and the luxury of Contract Logistics Support (CLS) down the forward operating base. Many times, CLS was employed to work around the Force Manning Level limitations. This found many military uniformed logisticians handing out towels at the Gym or staffing a Commander’s Front Office.

This paper highlights dependencies on critical infrastructure that DoD has no control over, and sometimes little to no influence that is found outside the DoD Fence Line. One could argue that DoD is ignorant of the health of critical infrastructure that DoD is dependent on, as well as the fragility of industry and Defense Industrial Base supply chains.

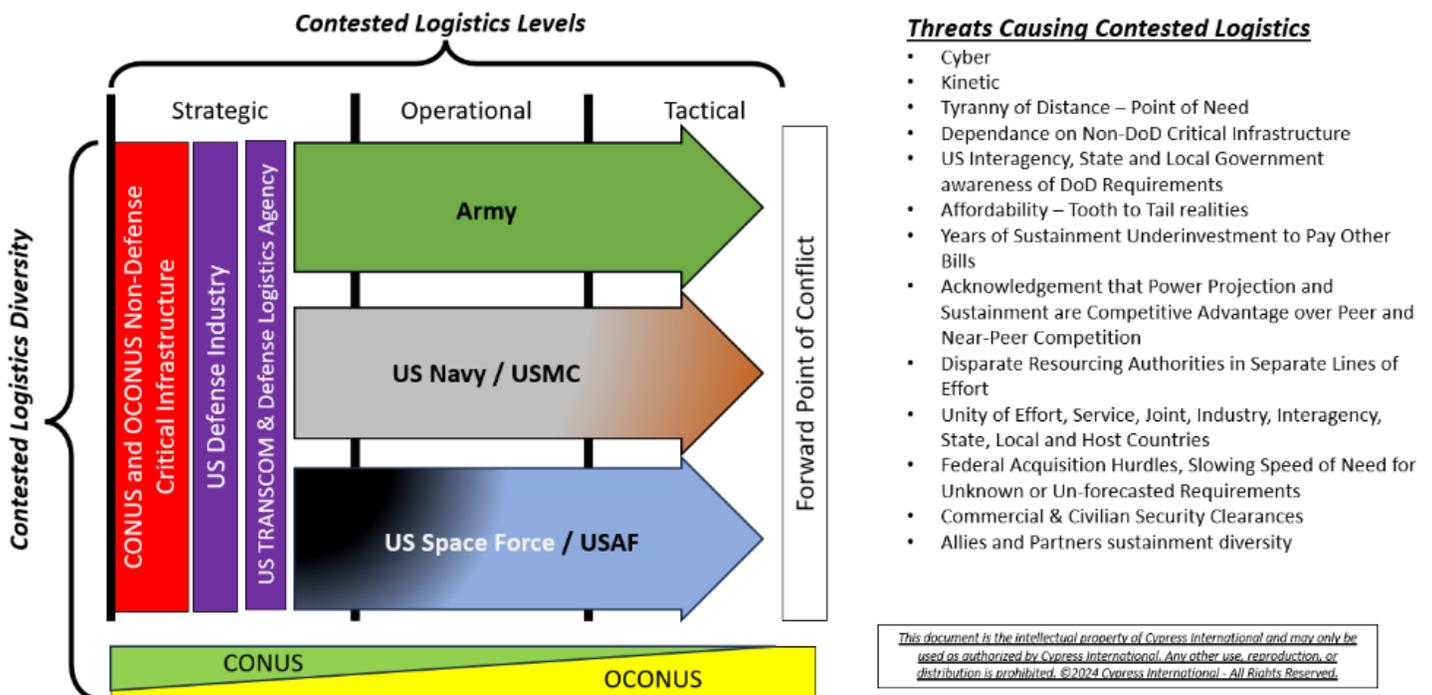
Webster’s dictionary definition of the word, “Contest” as: 1) a struggle for superiority or victory, and 2) a competition in which each contestant performs without direct contact with or interference from competitors. This paper will examine contested environments; Some of which are accounted for inside the DoD, some assumed way, some unknown by industry, state, local and federal government. One can assume our adversaries are watching, probing, and planning on how to contest our force projection and sustainment of that force in an away game.

The premise of this Contested Logistics Framework is that someone oversees every part of the organizational diversity in this framework, including public, private, and international partners.

The real question may be, who oversees synchronizing all the organizational diversity identified in the framework to mitigate a contested environment or has the authority to act?

Contested Logistics Framework Conundrum

“Who’s in Charge?”

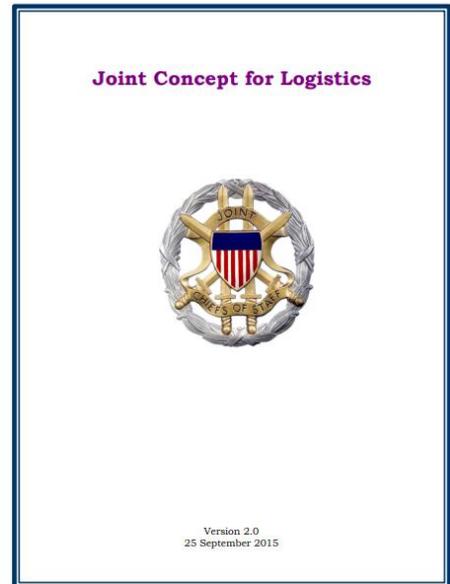


2.0 Joint Staff Concept for Logistics - 2015 & The Joint Deployment and Distribution Enterprise (JDDE) Planning and Operations, DoDI 5258.06 - April 2020

The Joint Staff Concept for Logistics (published in 2015) and the Joint Deployment and Distribution Enterprise (JDDE) Planning and Operations DoD Instruction 5258.06 (published in April 2020) are two keystone documents at the DoD and Joint Staff levels that are the foundation of the concept of contested logistics.

Joint Concept for Logistics (2015) This Joint Concept for Logistics (JCL) proposes a concept for how the Joint Logistics Enterprise (JLEnt) could support globally integrated operations in the 2020-2034 period. It entertains three basic questions about the future:

1. What if the challenges of globally integrated operations are fully implemented and the extrapolation of current trends into the future render the current approach to joint logistics inadequate?
2. How might the JLEnt meet that challenge?
3. What capabilities would it need beyond those that exist today?



The Capstone Concept for Joint Operations: Joint Force 2020 (CCJO) establishes globally integrated operations as the overarching concept by which future joint forces will operate. Globally integrated operations are anticipated to be extremely logistics intensive. This document applies to logistics support provided globally rather than to one joint operation or within a single theater. It applies not only to all military elements of the JLEnt, but also those that are the core of the enterprise and the interagency, foreign, nongovernmental, and commercial partners that may contribute situationally. This concept encompasses the full range of military operations that could be ongoing globally in the future, including: routine engagement activities by relatively small units, up to major armed conflict with an enemy employing advanced weapons (including anti-access/area-denial weapons).

The Challenge: *Increasingly Demanding Logistics Requirements in an Era of Constrained and Degraded Resources.* The challenge for future joint logistics is to adequately support globally integrated operations given the combination of five ongoing trends:

- The increasing logistics demand of U.S. joint forces and operations
- Constrained resources, both overall and within the logistics force structure

- The growing complexity of logistics operations
- The proliferation of advanced anti-access/area-denial capabilities by adversaries that would degrade logistics capabilities and capacities
- Increasing cyber threats to joint and partner logistics networks and mission systems

Within the context of globally integrated operations, the tension between increasingly demanding logistics requirements and constrained/degraded logistics resources creates a dilemma that will be the essential challenge joint logistics will have to overcome for the foreseeable future. These trends have the potential to create a situation in which the disparity between logistics demand and logistics resources—the Logistics Gap—will demand a new conceptual approach to logistics.

The Solution: *Globally Integrated Logistics*. This Joint Publication proposes the concept of Globally Integrated Logistics (GIL) as an exercise in thinking about the future. GIL is the capability to allocate and adjudicate logistics support on a global scale to maximize effectiveness and responsiveness, and to reconcile competing demands for limited logistics resources based on strategic priorities. This concept envisions an adequately resourced JLEnt providing modularized logistics support to leaner joint forces worldwide. GIL is an agile global logistics resource allocation and adjudication capability that will coordinate and integrate all elements of the JLEnt via a resilient and comprehensive information environment. GIL will manage logistics capabilities effectively, efficiently, and dynamically across theaters to reconcile constrained logistics resources with competing operational demands. It is a rapid and flexible transportation system able to move forces and supplies quickly between and within theaters, augmented by prepositioned capabilities and stocks that can be shifted between theaters and will operate through a flexible worldwide network of logistics nodes. It will provide multiple options for lines of communication through potentially challenged global commons and forward regions. The precepts of Globally Integrated Logistics are:

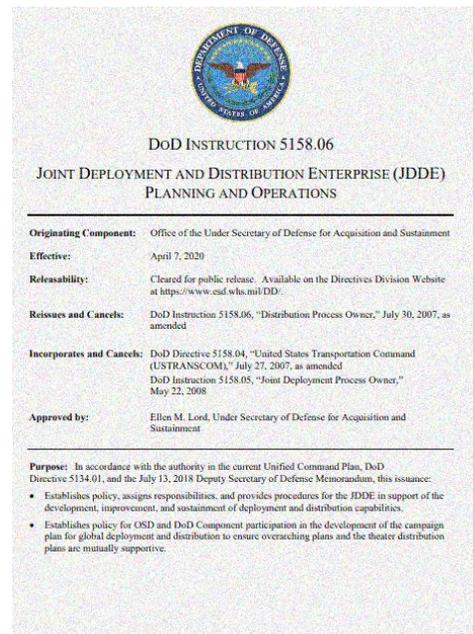
- An adequately resourced logistics enterprise.
- An agile global logistics resource allocation and adjudication capability.
- A resilient and comprehensive logistics information environment.
- Highly modularized and interoperable logistics capabilities.
- Leaner forces and operations JOINT CONCEPT FOR LOGISTICS 25 September 2015 vii.
- A rapid and flexible transportation system able to move forces and supplies quickly between and within theaters.
- Prepositioned stocks and capabilities that can be selectively accessed and moved quickly to multiple theaters.
- A flexible worldwide network of logistics nodes Required Capabilities. The concept identifies twenty-four broad capabilities the JLEnt must possess to implement GIL fully.

The essential challenge for the JLEnt in the future is to support globally integrated operations by meeting increasingly demanding logistics requirements with constrained resources in a potentially contested environment. This concept proposes that the JLEnt could meet that challenge through the concept of GIL, the capability to allocate and adjudicate joint logistics support on a global scale to maximize effectiveness and responsiveness, and to reconcile competing demands for limited logistics resources based on strategic priorities.

The Joint Deployment and Distribution Enterprise (JDDE) Planning and Operations, DoDI 5258.06 – April 2020

The JDDE boundaries include movement of forces and materiel from the point of origin to the CCDR designated point of need, including CONUS, inter-theater, and intra-theater movements.

The JDDE is comprised of representatives from: OSD, Military Services, Joint Staff, Combatant Commands, DLA, Defense Health Agency, USTRANSCOM and its component commands and subordinate commands, U.S. commercial industries (e.g., commercial transportation service providers and the National Security Innovation Base), U.S. Government agencies (e.g., Federal Emergency Management Agency, Department of Health and Human Services, and Department of Veteran Affairs), DoD and Service agencies (e.g., Army Air Force Exchange Service, Defense Commissary Agency, Defense Security Cooperation Agency, Navy Exchange Command).



The JDDE may also include: non-DoD U.S. Government organizations, non-governmental organizations, Multinational organizations when DoD approves access to movement support to accomplish a specified mission, Allies and coalition partner nations when DoD approves security cooperation activities access to movement to accomplish a specified mission.

JDDE members will collaborate with the JDDE to:

- Synchronize efforts to reform and enhance deployment, distribution, and patient movement-related processes and systems.
- Ensure end-to-end Inter-transit Visibility (ITV) from the point of origin to point of need with an integrated approach and optimal solutions to meet various Stakeholder requirements.
- Routinely review JDDE capabilities and operations to:

- Focus. Efforts on precision, reliability, efficiency, cost effectiveness, and ITV.
- Assess performance against measures of effectiveness:
 - 1. Established indicators and indicator thresholds of JDDE precision, reliability, efficiency, cost effectiveness, and ITV.
 - 2. New indicators and indicator thresholds that are developed when needed to improve measures of precision, reliability, efficiency, cost effectiveness, and ITV.

Observations on both Documents:

One could argue (especially a Service) that this DoDI contradicts the authority of Service Title 10 Authorities to Man, Train and Equip their service component responsibilities. Although this DoDI identifies its members and who “may be included” as the allies, partners, and industry in the document, the JDDE seem to be focused on transportation distribution and not the U.S. Supplier Industrial Base and its supply chain. One could see where there is room for a “Duke Energy” or other utility providers to be included, it seems that attacks on critical infrastructure outside the wires of DoD installations and ports are vulnerable and be contested.

There is also great opportunity to confuse the Joint Deployment and Distribution Enterprise (JDDE), Globally Integrated Logistics (GIL) and Joint Logistics Enterprise (JLEnt) in these two keystone documents.

3.0 The Threats Creating a Contested Environment

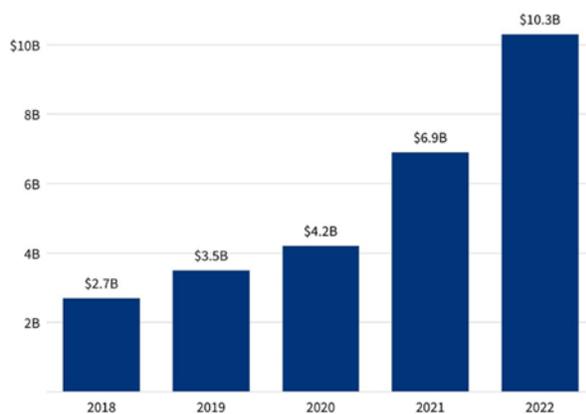
Separate from the common threats of the battlefield environment, below are the threats that logistics will face in the contested space:

- Cyber
- Kinetic
- Tyranny of Distance – Point of Need
- Dependence on Non-DoD critical infrastructure
- U.S. Interagency, State, and Local Government awareness of DoD requirements
- Affordability – Tooth to Tail realities
- Years of sustainment underinvestment to pay other bills
- Acknowledgement that power projection and sustainment are competitive advantage over Peer and Near-Peer Competition
- Disparate resourcing authorities in separate Lines of Effort
- Unity of Effort, Service, Joint, Industry, Interagency, State, Local, and Host Countries
- Federal acquisition hurdles, slowing speed of need for unknown or unforecasted requirements
- Commercial & Civilian security clearances
- Allies and partners sustainment diversity

Cyber Seeming to be the strategic and operational pacing threat to contest logistics domestically, internationally, and within the Department of Defense is the cyber threat. The two charts below published by the FBI show this increasing threat. The services within their Title 10 authorities have created forces to combat these threats. The real problem is how effective they are in defending critical infrastructure and the tens of thousands of vendors found in the DoD Supply Chain - it's not DoD's mission.

Financial losses from cyber-attacks increased by nearly 50% between 2021 and 2022.

Financial losses reported to the IC3, 2018–2022

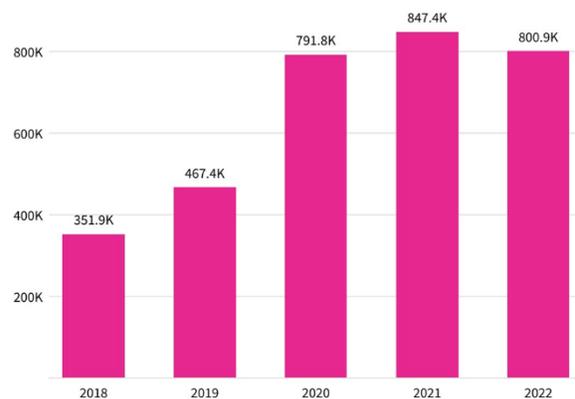


Source: Federal Bureau of Investigations

USA FACTS

While cyber-attack complaints are down 5% from 2021, they have more than doubled since 2018.

Cyber-attack complaints reported to the IC3, 2018–2022

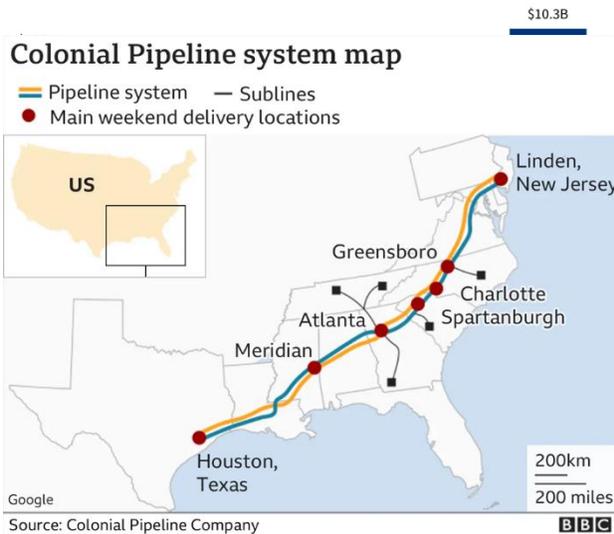


Source: Federal Bureau of Investigation

USA FACTS

Financial losses from cyber-attacks increased by nearly 50% between 2021 and 2022.

Financial losses reported to the IC3, 2018–2022



A problem exists when critical infrastructure that DoD is reliant upon is attacked outside of DoD’s scope of responsibility to defend. There is no better example than the Colonial Pipeline.

The Colonial Pipeline is not only important to commerce and cost of fuel on the east coast, but it is also a main supplier of fuel from Houston to the Atlantic Fleet. When that pipeline is shut down for any reason, DLA executes work arounds that are both costly and take time to achieve.

In May of 2021, a cyber-criminal gang that took a major U.S. fuel pipeline offline acknowledged the incident in a public statement. "Our goal is to make money and not create problems for society," DarkSide wrote on its website.

The pipeline carries 2.5 million barrels a day - 45% of the East Coast's supply of diesel, petrol, and jet fuel. The operator took it offline on a Friday after the cyber-attack. On Monday, the FBI officially confirmed that DarkSide was responsible for compromising Colonial Pipeline's networks, saying that it was continuing to work with the firm and other government agencies on the investigation. A number of cyber-security researchers have speculated that the cyber-criminal gang could be Russian, as their software avoids encrypting any computer systems where the language is set as Russian. U.S. fuel prices at the pump rose six cents per gallon on the week to \$2.967 per gallon for regular unleaded gasoline, the American Automobile Association (AAA) said on Monday, while Wall Street shares in U.S. energy firms were up 1.5%.

Another case of a Russian cyber-attack directed towards Ukraine and associated businesses – now known as “NotPetya” – was conducted on Danish international shipping company A.P. Møller-Maersk. Maersk was one of many high-profile businesses embroiled in the Russian cyber operation. Maersk is a large transportation provider for both USTC and DLA. Maersk’s response was questionable as its computer systems were rapidly compromised. The company’s cybersecurity program was affected by the propagation of the NotPetya malware, as well as its impact on Maersk’s operations for days following the attack.

In 2017, A.P. Møller – Maersk, better known simply as Maersk, had been the world’s largest shipping carrier for two decades and was one of Denmark’s largest companies. A global behemoth, it had over 75,000 employees in 130 countries overseeing logistics, ports, and

shipping lines. Like most companies, Maersk did not see itself as the potential object of a targeted cyberattack, while its risk managers did not understand just how quickly and widely the computer systems on which the companies' most basic operations relied could be compromised, let alone recovered, in case of disruption. One of the attack's most high-profile corporate victims was Maersk. In 2017, it managed seventy-six ports across the globe and eight hundred sea vessels, representing nearly one-fifth of the entire planet's shipping capacity. Thus, an attack on its operations would affect not only the company's own profits, but a significant share of international trade and the global supply chain. NotPetya combined two powerful and virulent hacking tools: EternalBlue, which was stolen from the U.S. National Security Agency (NSA) in 2017, and Mimikatz, which was created by a French researcher in 2011.

Kinetic Russian Doctrine since the Cold War finds Russian Special Operations Forces attacking U.S. Support Areas and their supply lines at the Operational Level and Strategic Levels. In World War II, U.S. Sea Lines of communication were attacked by Germany and Japan. The U.S. Navy has not performed Convoy Operations to protect sea lanes since WWII. For the first time, domestic terrorism attacking infrastructure in the homeland has our Peer Competitor's attention. Take the examples of a long rifle shooting transformer stations shutting down power grids, or an accident where a single truck tanker fire under an overpass shuts down I-95. They also see how the U.S. is attacking Houthis supply and force projection nodes in Yemen, and Ukraine and Russia are attacking each other's infrastructure.

Tyranny of Distance The battlefield geometry in Europe versus the Pacific represents their own unique contestable environments. U.S. National Security has identified U.S. Priorities as first INDOPACOM, followed by EUCOM. Since INDOPACOM has longer lines of communication, there is greater opportunity for contest.

Dependance on Non-DoD critical infrastructure This has already been mentioned in the Colonel Pipeline example and the kinetic attack observations on infrastructure. Early in the Ukrainian conflict, Russia targeted Ukrainian electric grids because they knew the reconstitution would initially be reliant on Russian made electric infrastructure such as transformers. Eventually over time, the rest of Europe helped reconstitute the Ukrainian power grid.

U.S. Interagency, State, and Local Government awareness of DoD requirements Emergency Management response and the tragedy of the USS Bonhomme Richard Fire in 2020 and the Ft Hood insider attack by Major Nidal Hasan in 2009 proved that our communications with emergency management, local, and state governments adjacent to U.S. Installations and Bases has not improved to the level required.

Affordability – Tooth to Tail realities Logistics budgets driven by Operation and Maintenance Accounts (O&M) and Working Capital Funds seem to always be the billpayer for weapon

systems procurement accounts. The budget drill in Logistics is always measuring what the service or DoD is not going to do or defer. A good example is the Army's new policy to extend annual services for Tactical Wheeled Vehicle fleets from annually to biennially or seven thousand miles.

Years of sustainment underinvestment to pay other bills Due to the situation described in the previous paragraph, there is a snow balling effect of deferring maintenance, military construction, and SRM accounts. It compounds the contested vulnerabilities in equipment and infrastructure.

Acknowledgement that power projection and sustainment are competitive advantage over Peer and Near-Peer Competition The best example is why Russian Forces could not occupy Kyiv in the Ukrainian Capital, grinding to a logistics stop. The United States superpower is projection power (the ability to rapidly deploy forces) and sustaining that power in the long run. U.S. adversaries are currently looking into ways to create contested environments to hinder the U.S. capability in an away game.

Disparate resourcing authorities in separate Lines of Effort This is merely the confluence of service Title 10 authorities and Joint Concepts that have no Title 10 authority nor the funding or manning aligned.

Unity of Effort - Service, Joint, Industry, Interagency, State, Local, and Host Countries The best crack at this was the framework provided in the JDDE, however fraught with lack of authorities.

Federal acquisition hurdles, slowing speed of need for unknown or unforecasted requirements The U.S. Peer competitors are not hindered by this problem. Their defense industry is normally state-owned enterprises where industry is directed what to manufacture and how to operate. Competition and social programs do not hinder our Peer Competitors.

Commercial & Civilian Security Clearances Taking cost out of the equation, limitations on who can obtain clearances and over classification of material has created bottlenecks in the information sharing throughout the DoD. The consequence of not having critical personnel have clearances is more detrimental than maintaining more personnel that have clearances. Most of the time it is an industry expert on supply chain, technology, or infrastructure.

Allies and partners sustainment diversity You can see this manifest itself in Ukraine where multiple allies and partners have donated equipment. There are seven different artillery systems, four different main battle tanks, dozens of distinct types of armored personnel carriers and tactical wheel vehicles. They all have different supply chains and different maintenance skills and training requirements. Most western nations that have increased their percentage of GDP being spent on defense, desire that money to be reinvented in their own defense industry.

4.0 Army Contested Logistics

In October 2022, Army Secretary Wormuth’s keynote address at the Association of the United States Army’s annual meeting emphasized logistics and sustainment support in the Indo-Pacific to strengthen deterrence in the theater. She also tasked the Army

Material Command (AMC) to connect the Army’s “logistics community with the commercial sector to look at our requirements and focus on the opportunities presented by autonomous distribution, energy efficient combat systems, and predictive analytics.” The Army Futures Commander, General Rainey, announced the formation of a Cross Functional Team (CFT) for Contested Logistics to be co-located with AMC in Huntsville, Alabama. This colocation provides a path for logistics to be seen in the same light as new combat capabilities with industry. U.S. Army CASCOM hosted the first Contested Logistics Industry Week in the fall of 2023. The first assigned Director of the Contested Logistics CFT, COL(P) Shane Upton rolled out the CFT’s Mission Statement and the contents of the CFT’s Portfolio.

Contested logistics was a topic of discussion in a March 2023 Senate Armed Services Committee Army posture hearing with the Army Chief of Staff, General McConville. When asked how the FY24 budget supported contested logistics, McConville pointed to the new cross functional team for contested logistics as a start and referenced the lessons learned in Ukraine. Then, he compared the robust capability to support logistics in the European theater to the work needed in the Indo-Pacific, and highlighted areas of funding for procurement of watercraft and prepositioned stocks.

According to Army budget materials, the FY24 funding for distributed logistics in a contested environment, specifically Indo- Pacific, totals \$1.4 billion. The Army’s 2023 planned Indo-Pacific Command exercises, such as Pacific Pathways, will inform future logistics community decisions

Contested Logistics CFT



Mission Statement: The Contested Logistics Cross-Functional Team will narrow or close critical sustainment capability gaps by developing Army, Joint and Combined Signature Sustainment Modernization Capabilities in support of Multi-Domain Operations (MDO) and Large-Scale Combat Operations (LSCO) in a contested environment.



COL Shane Upton,
Director of the CL-CFT

Portfolio	Content
Precision Sustainment	<ul style="list-style-type: none"> - Rapid, data-driven, resilient capabilities that are required to execute precision logistics in a contested environment - Leverage Artificial Intelligence, specifically Machine Learning that will enable tactical precision sustainment and mission command decision support - The backbone of Sensor to Shooter to Sustainer
Multi-Capable Distribution Platforms	<ul style="list-style-type: none"> - Mitigates risk associated with distribution operation during contested MDO environment - Autonomous/Robotic resupply and distribution capabilities by land, air, and water required to sustain the warfighter in a contested environment - Automated machinery (robotics) to improve the efficiency of logistics operations (i.e. automated port operations)
Demand Reduction	<ul style="list-style-type: none"> - Exploiting technologies that reduce delivery times and lessen the overall burden on the distribution network - Material production at the point of need, advanced manufacturing - Reducing the demand of consumables, power, water and food
Advanced Power	<ul style="list-style-type: none"> - Powering the future force on the move from fort to foxhole, while reducing the demand of consumables to include liquid fuel and batteries - Integration of efficient alternative energy solutions and other sustainable fuel technologies to reduce energy demand and improve logistics sustainment in MDO and LSCO

Contested Logistics Cross Functional Team is IOC located on Red Stone Arsenal, Huntsville Alabama

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on effort and funding. An expected FY24 Q1 (Oct-Dec) Continuing Resolution could affect implementation of this initiative.

Army Distributed Logistics Investments	
Fiscal Year 2024	
Composite watercraft units and modernized platforms	\$180 million
Investment in force projection/strategic lift	\$96 million
Army prepositioned stocks	\$858 million
Fuel distribution systems, bridging and other enablers	\$262 million
Total	\$1.396 billion

In October 2023, the revision of Field Manual (FM) 4-0, Sustainment Operations took place based on the publication of FM 3-0, Operations. For the first time, FM 3-0 included several sustainment considerations. The new publication shifted the Army contribution to unified action from conducting unified land operations to multidomain operations. Multidomain operations are the combined arms employment of Joint and Army capabilities to create and exploit relative advantages that achieve objectives, defeat enemy forces, and consolidate gains on behalf of joint force commanders. Some of the big ideas captured in FM 3-0 include:

- Codifying Multidomain Operations as the Army's operational concept.
- Organizing chapters around the range of military operations that occur along the competition continuum in the context of competition, crisis, and conflict.
- Describing the Operational Environment (OE) as having five physical domains (air, ground, space, cyberspace, maritime) understood through three dimensions (physical, information, human).
- Updating the operational framework: deep, close, rear, and support areas within the strategic framework.
- Establishing the Theater Strategic level of war as a fourth distinct level separate from national strategic framework.
- Developing new Tenets and new Imperatives applicable to operations.
 - Tenets describe desirable attributes of operations (Agility, Convergence, Endurance, Depth).
 - Imperatives are actions Army forces must take to defeat an enemy and succeed in the multidomain OE.
- Adding a maritime considerations chapter and an appendix on contested deployment based on INDOPACOM threat implications.
- Identifying the Division as the principal tactical warfighting formation.

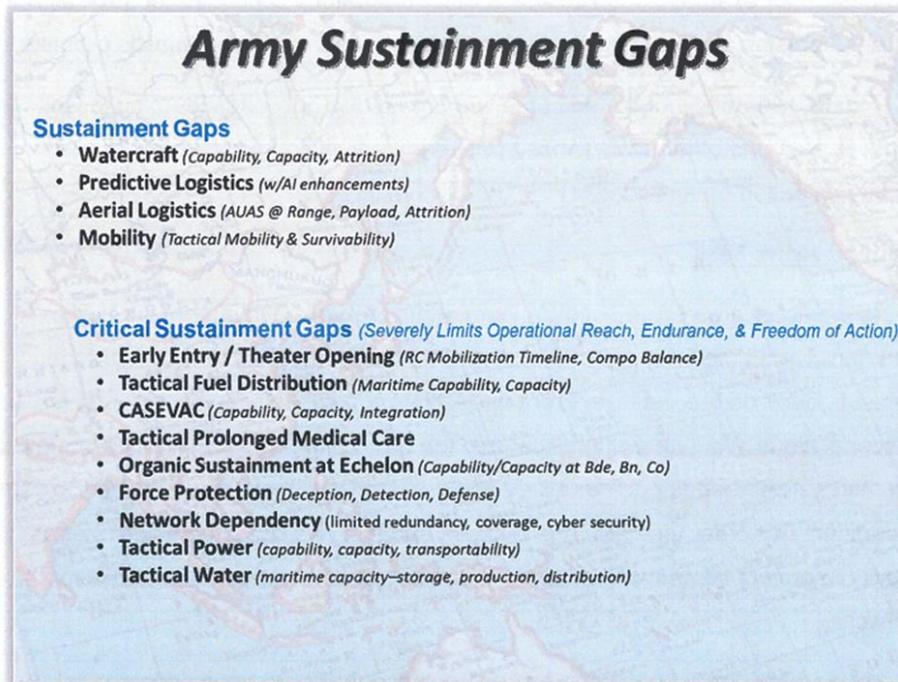
This doctrinal revision of FM 3-0 is nested in the evolution of sustainment doctrine. Sustainment doctrine is shifting from an organization-based focus to a task/function-based focus. Sustainment doctrine, where applicable, is now organized by echelon level within the context of competition, crisis, and armed conflict. The planned updates to the FM 4-0 Sustainment Operations manual mirror the FM 3-0 chapters. The book focuses on describing sustainment through:

- The purpose of sustaining operations in the change from unified land operation to multidomain operations.
- Addressing sustainment operations in the contexts of competition, crisis, and armed conflict.
- The roles and responsibilities of organizations by highlighting sustainment activities at the National, Strategic, and Theater levels of warfare as well as the Operational and Tactical levels.
- Sustainment tasks and functions for each element of the sustainment warfighting function (SWfF): logistics, fiscal management, personnel services, and health service.
- Support based on the levels of warfare to apply combat power described and visualized the operational framework of deep, close, rear, and support area operations.
- Adding a chapter on sustainment considerations and operations in a maritime operational environment (OE).
- Placing emphasis on contested logistics and efficiencies needed through decision dominance, autonomous distribution, demand reduction, advanced power, and maritime operations to conduct sustainment in a contested OE.
- Adding descriptions of predictive logistics as a means to achieve precision sustainment.
- Aligning sustainment operations with the tenets and imperatives for success during multidomain operations.
- Providing a chapter focused on sustainment leadership considerations and challenges.
- Moving the detailed “Principles of Sustainment” doctrine discussion in Appendix A of the current FM 4-0 to ADP 4-0 to better establish the foundational underpinnings of the SWfF.

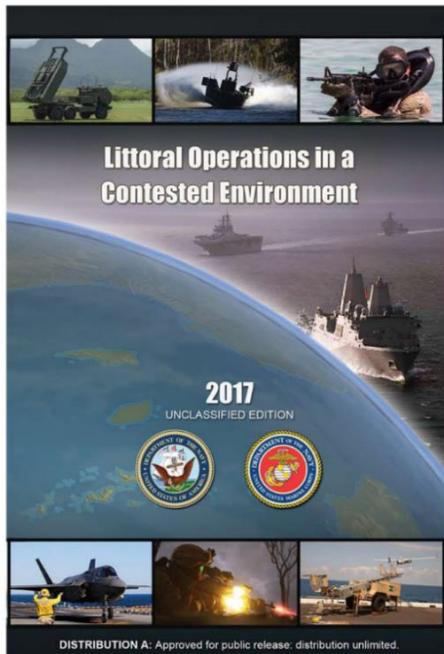
On 1 October 2023, The Army Material Command Commander, GEN Charles Hamilton signed a White Paper named, “Sustaining the Army of 2023.” In the forward of this paper, he asserts that America’s Army finds itself in the midst of a massive transformation. The Army of 2023 will have Division formations as its primary tactical formation. The White Paper identified emerging technologies that will yield six modernization priorities that will drive material development and organization design for Multi-Domain Operations. These six modernization priorities

include: Long Range Precision Fires, Next Generation Combat Vehicles, Future Vertical Lift, Army Networks, Air and Missile Defense, and Solider Lethality.

The White Paper also admits that the development of comparable sustainment capabilities has lagged on the fielding of the Big Five in the 1980's. With the danger of large-scale combat looming larger than ever, the White Paper declares the Army can ill-afford to repeat this same mistake. The paper identifies the Army sustainment gaps that must be addressed now, shown in the figure below.



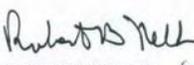
5.0 Navy & USMC Contested Logistics



(U) APPROVAL

(U) This concept describes the integrated application of Navy and Marine Corps capabilities to overcome emerging threats within littoral areas that are rapidly expanding in operational depth, complexity, and lethality. For a quarter century our naval team has enjoyed the benefits of maritime superiority. As a result, we've evolved our forces in ways that maximize our maritime power projection capabilities unencumbered by the concurrent need to achieve and maintain sea control. The era of uncontested maritime superiority is fading. New competitors are challenging us in a variety of ways. As emphasized in *A Design for Maintaining Maritime Superiority*, we must develop new concepts and capabilities to succeed against emerging threats. We must then test and refine those concepts through focused wargaming, modeling, and simulations and validate the underlying ideas through fleet exercises, unit training and certification. As underscored in the *Marine Corps Operating Concept*, the ability to think critically, innovate smartly, and adapt to complex environments and adaptive enemies has always been the key factor we rely on to win in any clime and place.

(U) In keeping with the guidance and sense of urgency expressed in the higher level Service guidance, this concept provides a framework for naval integration. It places a renewed emphasis on gaining sea control, to include employing sea-based and land-based Marine Corps capabilities to support the sea control fight. The ideas herein reflect the insights gained over an intensive 18 month collaborative effort that included extensive research, subject matter expert input, warfighter talks, wargames, and rigorous analyses. These ideas must be tested, refined, and enhanced to ensure our Navy and Marine Corps can uphold our shared 241-year history of protecting freedom of the seas in peace and achieving victory in war. We are counting on every Sailor and Marine to do their part.


ROBERT B. NELLER
General, US Marine Corps
Commandant of the Marine Corps


JOHN M. RICHARDSON
Admiral, US Navy
Chief of Naval Operations

In the U.S Naval Institute article, “Prepare for Contested Logistics,” Brian O’Rourke writes, “It is roughly 6,000 nautical miles, as the missile flies, between San Diego and Taiwan, and a bit more than 5,000 from Seattle. Russia’s invasion of Ukraine and the 40th anniversary of the Falkland Islands War have sharpened attention on the challenges surrounding sustainment of U.S. Forces in the western Pacific should those miles ever have to be covered in the face of determined opposition.”

The Russian invasion of Ukraine, especially, has concentrated the minds of Western analysts on contested logistics. Months of preparation notwithstanding, at least in its opening phases, the invasion appeared to suffer from woeful logistics despite having a comparatively short tail.

Photos and videos posted to social media showed Russian armored vehicles, tanks, and trucks frequently stopped on the side of the road without fuel, and rumors of inadequate food supplies for Russian troops were rampant. This resulted, in early March, in military and national security Twitter accounts full of memes and posts from U.S. S-4/N4 logistics types triumphantly recounting what can go wrong when planners neglect their areas of expertise.

Today, one should be familiar by now with the Navy and Marine Corps’ attention to contested littoral operations and their subsidiary, expeditionary advanced base operations. Many authors have paid attention to the challenge of sustaining such operations inside the “weapons engagement zone” of China’s oft-discussed anti-access/area-denial network of antiship and anti-aircraft weapons. One idea that has received attention on multiple occasions in recent years is for the Navy to employ seaplanes for everything from insertion of Special Operations

Forces to air-to-air refueling. Were the Navy to explore seaplane logistics and sustainment seriously, it would not be the first modern military to do so.

The AVIC AG600 amphibian, in development in China for eight years, has a reported range of 2,400 nautical miles (nm) and maximum takeoff weight of 118,000 pounds (from a solid surface; it is a bit less from water).

In Marine Corps Doctrinal Publication 4, Logistics dated 21 March 2023, The nature of Logistics is described as the engine of strategy. Strategy is the adoption, alignment, and the balancing of ends, ways, and means to achieve objectives in a contested and competitive environment. When conducted properly, formulating strategy refines objectives and provides clarity to resource requirements. Logistics provides the materiel means to execute a nation's strategy. Logistics is a complex undertaking that requires an in-depth appreciation of its inherent characteristics, elements, and relationship to warfighting. Marines with a firm grasp of what logistics fundamentally is and entails are prepared to support operations across the competition continuum.

This publication further explains Hybrid Logistics. "Today and in the future, Marines will operate in five domains: sea, air, land, space, and cyberspace. Evolutionary and revolutionary advances in technology will increase our competitors' lethal capabilities in each domain. We know this based on the British experience in the Falklands in 1982, the Israeli experience against Hezbollah in 2006, and the Russian experience in Ukraine in 2022. Marines will have an advantage for shorter periods of time in each domain, so we cannot count on the sustained dominance in each domain that we had in the past."

MCDP 4, Logistics, is the beginning, not the end, of logistics discussion, debate, and development. What makes Marines unique is their ability to creatively apply, improve, or even modify doctrine in response to Marine initiative or to meet future challenges. The concepts and ideas presented in this publication are meant to guide our thinking and expand our understanding of logistics in warfighting. Moving Marine Corps logistics into the 21st century will require both conventional and contrarian thinking. Successfully supporting Marines in future conflicts requires in-depth knowledge tempered by experience, experimentation, and innovation.

6.0 USAF and USSF Contested Logistics

In June 2023, senior Air Force officials gathered to discuss strategy, policy, and the future fight at the CORONA-South summit at MacDill Air Force Base in Tampa, Florida. There senior leaders held a table-top exercise focused on the strategic risks related to conducting logistics in contested environments.

“All our operations are underwritten by logistics,” said Secretary of the Air Force Frank Kendall. “Our ability to rapidly move people and supplies is one of our defining capabilities and logistics sustains our ability to project power. This exercise clearly defined the challenges ahead of U.S. if we are called upon to respond to a large-scale contingency.”

The exercise was based on a logistically stressed scenario derived from challenges noted in the National Defense Strategy. Participants discussed sustainment of forces actively maneuvering in Agile Combat Employment (ACE), defense, and recovery from attack, as well as topics about expanding capacity within the defense industrial base.

The U.S. Air Force’s logistics capabilities are unmatched, yet exercises like these help leaders address future challenges, which will be overcome through adaptive training and tactics, key investments in logistics capabilities, and innovation from American Airmen.

“Credible military logistics capability is a key element of integrated deterrence,” said Air Force Chief of Staff at the time Gen. CQ Brown, Jr. “As a member of the Joint Force team, the Air Force must adapt quickly to the character of a modern, high-end fight, and I’m proud of how the professionals from across our logistics enterprise are pushing to accelerate change in this decisive decade.”

This table-top exercise demonstrated to participants that in order to align with the Department of the Air Force’s operational imperatives, resilient basing, and readiness to deploy and fight, the joint logistics enterprise must pursue critical investments to ensure the Air Force can sustain the fight against any adversary in the future.

Critical investments include: teaming with industry to equip forces with lighter, more mobile support equipment; partnering with allies to ensure combined efforts within the logistics enterprise and industrial base; and the synchronization and responsiveness of the logistics enterprise and industrial base during contingencies. An extensive range of critical tasks are required to come together to keep the Air Force ready to deter potential adversaries or prevail in conflict, if necessary. For example, in every combat sortie, Airmen perform hours of maintenance, test and transport fuel, build and load munitions, and prepare air crew life support systems. Engineers provide power, maintain infrastructure, and stand ready to extinguish flames or repair damaged airfields. Security Forces lead multi-capable Airmen to defend operating locations. Additionally, maintaining a fleet of aircraft and missile systems,

which require periodic depot-level maintenance, relies on expert DAF civilians and contract employees who return weapons systems to better than new condition.

Findings during this exercise reinforced the need for leaders to retain a relentless focus on accelerating change across the spectrum of combat-credible logistics capabilities, which are the foundation of air and space power generation.

Additionally, recent Valiant Shield Exercises prove to expand the Agile Combat Employment Exercise (ACE) portfolio. The Air Force is expanding ACE operations beyond the Northern Mariana Islands, which include the U.S. territories Guam, Tinian, and Saipan. Now, PACAF can count on the Republic of Palau and the Federated States of Micronesia to practice landing, re-equipping, and quickly launching from unfamiliar, austere island locations.

At 2023's NDIA Annual Logistics and Distribution Conference, Maj Gen Stephen Purdy, Jr., USSF Program Executive Officer for Assured Access to Space; Commander, Space Launch Delta 45; Director of Launch and Range Operations, Space Systems Command; Director of the Eastern Range, Patrick Space Force Base, Florida spoke about Space and its role in logistics that included the following points:

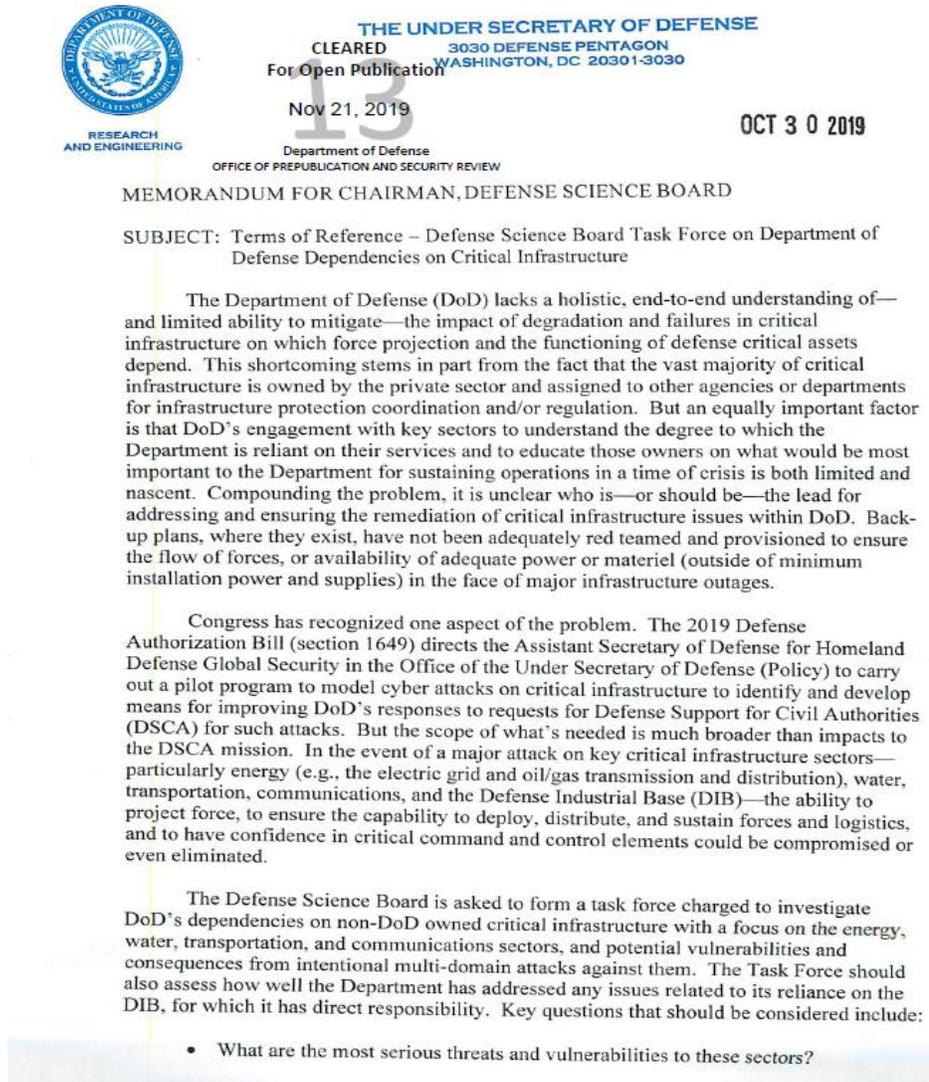
- Space is a data manipulation service, moving and automating which is key to Joint All Domain Command and Control.
- There have been \$1-4 Billion in launches in the commercial sector, which are both difficult and expensive.
- Commercial interest has been a game changer, there are about 150 launch companies growing exponentially today.
- There is a hybrid market blend of commercial and defense.
- JP-04 will need to be rewritten.
- Space mobility and logistics space mobility launches will support the movement of military personnel and equipment.
- Space Force has a desire to become a TRANSCOM Component with the following missions:
 - In Space servicing, assembly and manufacturing
 - In orbit services
 - Space maneuver and service
 - Space access, mobility and logistics
 - Trend areas in the space industry are growing and changing
 - Launch customers: past-Government, now Government and over three hundred Industry customers
 - Launch cadence: past-10+ per year, now-100+ per year
 - Installations: past-Major Test Ranges, now-Space Ports

- Space Ports: past-Excess Capacity, now-Demand Base
- U.S. Space Ports
 - Cape Canaveral, Government
 - Vandenberg AFB, Government
 - Wallops VA, State Owned
 - Kodiak AK, Privately Owned
- Internationally space ports are popping up everywhere, opening both commercial and Industry investment potential.
- PEO Mission
 - Debris mitigation
 - Disposition of orbit material
 - On Orbit repositioning, repair and servicing
 - Mission assurance
 - Planning and acquisition
- Launch sites have grown in the U.S. commercially from 31 to 92 in the east and 11 to 42 in the west. Main companies in the launch and satellite race are StarLink, StarShield, OneWeb, and Kuiper.
- Point to Point Logistics is a game changer
 - Material delivered to Guam from Cape Canaveral in 72 minutes.
 - Container military payloads with reusable rocket launch systems.
 - In an AFRL VanGuard Studies Program, they predicted that a high number of missions will be less expensive than C17s.
 - Rocket Cargo is in direct support of CCMDs.
- SpaceX “Go to Mars”
 - Taking advantage of SpaceX with space stations and moon stations as a road to Mars.
 - Cannot doubt SpaceX and need to take advantage of their aspirations.
 - SpaceX is putting fuel recharging stations in orbit today.
 - Already mass-producing Saturn 5 sized rockets for the future today.
 - Goal is to produce on star ship a day on the pursuit to Mars.
- U.S. SPACECOM’s focus Areas
 - Orbit repositioning
 - Upgrade and repair in orbit
 - Maneuver without regret
 - Mid-flight refueling
 - On-Orbit assembly and manufacturing
 - Dynamic response and complexity
 - Assured access to Space

7.0 Civilian, Commercial Industry, Federal, State, & Local critical infrastructure dependencies

For the last three years, the Defense Science Board’s (DSB) Task Force on Defense dependencies on critical infrastructure have met and studied DoD dependencies on infrastructure it does not control.

This Task Force received briefs on Contested Logistics from the Joint Staff J4, Combined Arms Support Command (CASCOM), and the 8th Theater Support Command. The formal report is currently being written as the findings and recommendations are currently being briefed to Senior Defense Officials. The Terms of Reference for this Task Force follows:



- What are DoD's assumptions about operating in a contested homeland environment, and do these assumptions adequately address the evolving threat environment?
- What are the potential impacts to DoD operations and/or assets should an attack compromise or eliminate sector capabilities for days to weeks?
- How well prepared is DoD to mitigate the consequences of outages, lack of availability, or compromises to the information flow within the sectors that affect its operations?
- What steps should the Department take to improve its resiliency to the loss or degradation of infrastructure sector services critical to its operations, especially in a crisis environment in which military deployments have been ordered?
- How can DoD partner with other agencies, as well as with private sector partners (directly), to ensure at least a minimum essential level of availability of key infrastructure supporting critical DoD missions in any circumstance?
- How can DoD promote regional resilience/secure enclaves including resilience of critical nodes beyond just its fence line?

The Task Force is encouraged to engage other departments or agencies within the government, as well as infrastructure owners, in order to develop as complete an assessment as possible.

I will sponsor the study. Dr. Miriam John and Hon. Judith Miller will serve as the co-Chairmen of this study. Mr. Jan Ithier will serve as the Executive Secretary. Mr. Kevin Dodoxy will serve as the Defense Science Board Secretariat.

The task force members are granted access to those DoD officials and data necessary for the appropriate conduct of their study. The Under Secretary of Defense for Research and Engineering will serve as the DoD decision-maker for the matter under consideration and will coordinate decision-making as appropriate with other stakeholders identified by the study's findings and recommendations. The nominal start date of the study period will be within three months of signing this Terms of Reference, and the study period will be between 9-12 months. The final report will be completed within six months from the end of the study period. Extensions for unforeseen circumstances will be handled accordingly.

The study will operate in accordance with the provisions of Public Law 92-463, "Federal Advisory Committee Act," and DoD Instruction 5105.04, "DoD Federal Advisory Committee Management Program." It is not anticipated that this study will need to go into any "particular matters" within the meaning of title 18, United States Code, section 208, nor will it cause any members to be placed in the position of action as a procurement official.


Michael D. Griffin

8.0 OSD's Regional Sustainment Framework DoD Maintenance Symposium Dec 2023

Regional Sustainment Framework: The Regional Sustainment Framework (RSF) is a blueprint aimed at empowering a globally connected, distributed, and resilient Maintenance, Repair, and Overhaul (MRO) ecosystem from which a comprehensive Regional Sustainment Strategy (RSS) will originate. The RSF is intended to bring existing and potential weapon system MRO capability and capacity closer to the forward point of need, and to augment traditional strategies improving readiness in a contested logistics environment.

The RSF will determine and communicate a broad methodology for minimizing downtime for both routine and combat-related repairs, thereby expediting the return of ready military systems to the warfighter. This focus enhances operational readiness and effectiveness, particularly in contested environments.

RSF Objectives:

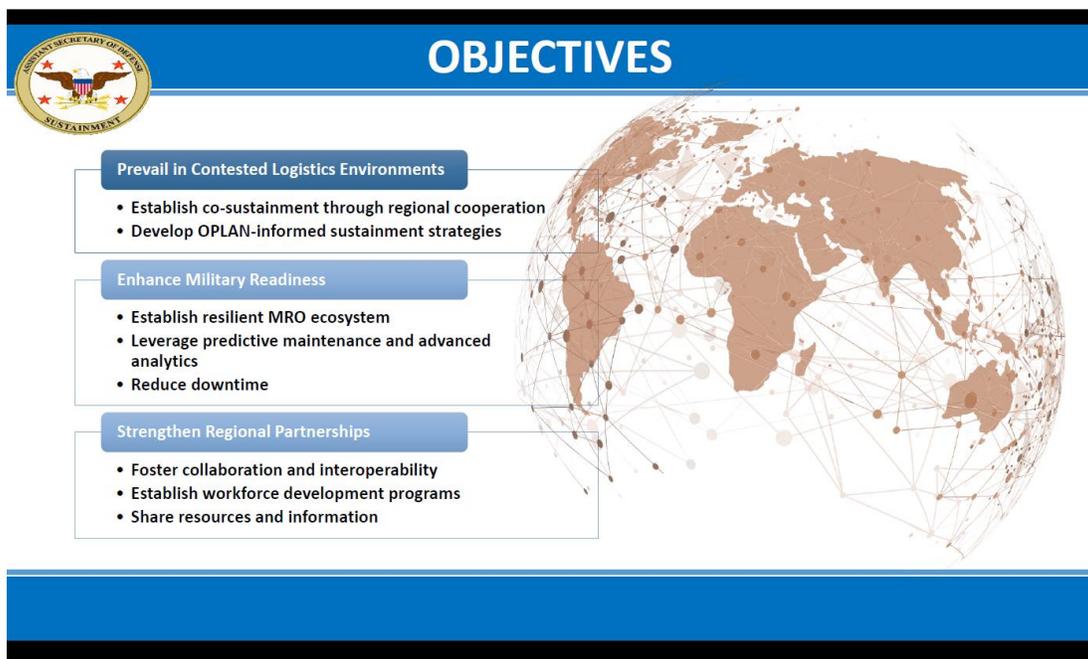
1. *Prevail in Contested Logistics Environments* by developing a robust contingency plan-informed approach to sustaining joint, allied, and partner capabilities in contested logistics environments. The RSF will identify and leverage MRO capacity in theater, addressing capability gaps and vulnerabilities in sustaining critical weapon systems required for theater contingency plans; assess operational effectiveness and readiness impacts; implement agile sustainment strategies that adapt to changing conditions and emerging threats; and optimize the use of regional MRO capacity to minimize retrograde and respond to changes in demand.
2. *Enhance Military Readiness* by improving the effectiveness and efficiency of MRO capabilities for rapid response and regeneration of readiness, optimizing MRO for prioritized weapon systems, and encouraging ally and partner nations and industry to expand repair capabilities and range. The RSF will leverage predictive maintenance and advanced analytics for repair scheduling and develop protocols to rapidly expand existing MRO capacity and/or establish new MRO facilities where needed.
3. *Strengthen Regional Partnerships* by fostering collaboration and interoperability among DoD, industry partners, and allies and partners for a unified RSS. The RSF will leverage existing forums with strategic partners to address sustainment challenges and cooperation opportunities; design joint workforce development programs and exercises to enhance interoperability in sustainment operations; and facilitate information and resource sharing to build a unified strategy by incentivizing access to existing MRO capabilities, expanding current capacity, and establishing new MRO capabilities and capacity to support a strategic multi-national defense posture.

Strategic Approach

1. *Regional Prioritization*: Identify regions for RSF development based on strategic importance and operational needs.
2. *Allies and Partners*: Collaborate with ally and partner nations to leverage strengths, exploit mutually beneficial opportunities, and foster a unified approach to regional co-sustainment.
3. *Weapons Systems*: Tailor sustainment efforts to prioritize critical platforms and systems.
4. *Incentivized Collaboration with Industry*: Promote partnerships with the global defense industry and better alignment of commercial capabilities with Defense sustainment needs.

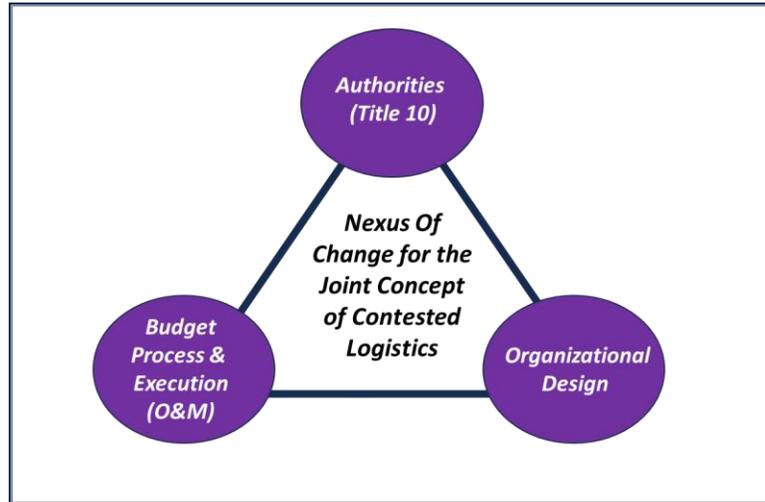
RSF Next Steps

1. *Refine RSF with Stakeholder Feedback*: Update the RSF to include critical stakeholder feedback, focusing on the integration of the Commercial and Organic Industrial Base capabilities and determine how to mitigate existing barriers.
2. *Identify and Catalogue Existing MRO Agreements*: Assemble a comprehensive list of current international DoD MRO agreements and initiatives and identify potential hurdles to determine a clear baseline for expanding the reach of RSF.
3. *Identify a Platform or System for Deep-Dive Pilots*: Partner with the Services on a recommended platform or weapon system to serve as a 'deep-dive' pilot project for the RSF to demonstrate its practical application and gather insights for broader Service execution.



9.0 Conclusions

As described in this White Paper, Contested Logistics means many things to many stakeholders. Modern technologies such as Artificial Intelligence, Machine Learning, Augmented Reality, Autonomous Operations, and the new domain of Space offer many solutions to many problems and are being applied where Title 10 authorities have prioritized. There is both Joint and DoD instruction that coalesce a community of the willing across the services. The gaps between DoD, Interagency, State, and Local are being recorded by the Defense Science Board with recommendations surrounding illumination of the blind spots where some faulty assumptions may be occurring.



U.S. Peer and Near Peer competition is measured as occurring sooner verses later. Any notable change cannot be achieved before the next fight. One could argue that the magnitude of change to improve DoD Logistics would take a decade to achieve. The three principles, or levers, to improve the Joint Concept of Contested Logistic are authorities, budget process and execution, and organizational design.

Budget Process and Execution Each fiscal year, tens of thousands of budget artifacts are produced. In PBR 24’s Operation and Maintenance (O&M) Budget there were 27 Separate Books with 6350 Pages, 36

Separate Budget Activities across all Services, with 555 Activity Groups and 229 Exhibits across all services. The assessment of that domain for PBR 24 found a continued loss in purchasing power because the inflation rate used was only 2.5% where the actual inflation rate was higher. There was only an increase of 3.1% in Operations and Maintenance over FY23 Enacted.

DoD Total

App Cat (\$M)	FY23En	FY24PB	% Change
MILPER	172.2	178.9	3.9%
O&M	319.9	329.7	3.1%
Proc	163.7	170.0	3.8%
RDTE	139.4	145.0	4.0%
Revolving	1.7	1.7	0.0%
MILCON	19.0	16.7	-12.1%
Total	815.9	842.0	3.2%

There was drop in cost recover rates, lower fuel costs, lower fuel usage, and a 5.2% increase in Civilian pay. This will result in a reduction of on-hand inventories, and an increase in Non-Mission Capable (NMC) for supply rates. PBR 24 shows that the O&M Budget is the largest appropriation with the least amount of accountability. Most of the O&M Budget includes fixed spending requirements like Civilian and Military personnels pay. It also has the highest versatility of discretionary spending in the parts of the O&M Budget which are not fixed. There are about two million Active National Stock Numbers (NSNs). One can find O&M Budget artifacts that show a dollar amount budgeted for spares (repair parts) by weapon system. How often has this number been correct or how often is a service held accountable for either going over or under that estimated spending target? If anything, units are penalized for going under budget by getting their budget cut the next year because they did not use all of it. This rewards units for overspending, which is contradictory to the nature of fiscal responsibility. Is it time to partition the O&M Appropriation Category into Categories that are purely discretionary spending to start to measure the success of the budget in meeting readiness requirements by addressing logistics spending? This part of the Nexus for JCCL can be changed without pulling the other two levers. Working Capital Fund Management is an entire White Paper by itself.

Authorities (Title 10) lever of the nexus for JCCL change is directly connected to the Organizational Design Lever. Title 10 authorities for a service to man, train and equip their service creates the different approaches to JCCL as laid out by service in this White Paper. The DoDI that created the Joint Deployment and Distribution Enterprise (JDDE) has no budget authority behind it. It is a document that identifies the coalition of the willing. It at least articulates Logistic shareholders in National Security outside of DoD. Most NDAA Sections that are added by Legislators through the NDAA process is to influence Title 10 authorities which fuels the working capital accounts. The best example of this is the language in the last two NDAA that directs DoD Bulk Fuel Management be taken over by U.S. TRANSCOM from DLA and the JCS J4. It assigns this task but gives no resource of assigned forces. Instead, the staff was increased at Scott Air Force Base with no commensurate reduction of force in the Defense Logistics Agency or JCS J4. This merely added to the overhead cost to manage bulk fuel for DoD. There is a place for a four star to command to deconflict where Combatant Commands (CCMD) desires fuel placed throughout their AOR. Title 10 Authorities within Services, not Combatant Commands, end up with this bill. Organizational design may be the answer in this Title 10 and CCMD competing demands.

Organizational Design Not the wholesale solution, but the UK's Royal Logistics Corp (RLC) could be an idea from which to Americanize. Formed in 1993, this is the British Army's largest Corps. From storing and moving equipment, fuel, ammunition, and supplies, to cooking meals, fixing IT systems, and delivering the mail, it supports British Army operations around the world whether

by land, sea, or air. The unit was formed in April 1993 by merging the Royal Corps of Transport, the Royal Army Ordnance Corps, the Royal Pioneer Corps, the Army Catering Corps, and the Royal Engineers Postal and Courier Service. The RLC is responsible for moving soldiers, materials, motor vehicles, tanks, ammunition, fuel, food, and other supplies to where they are needed. Without the vital services and skills of the RLC, it would be impossible for the Army to operate properly. The Corps is responsible for thousands of motor vehicles as well as the Army's storage, ordnance, and fuel depots. It also operates the Army's air dispatch service and maritime and rail transport. In recent years, the Corps has deployed units to Northern Ireland during the final years of "the Troubles," served with the British Army of the Rhine in Germany, and undertaken peace-keeping duties in Cyprus, Bosnia, and Kosovo (1999). It also served in the recent conflicts in Afghanistan (2001-14) and Iraq (2003-11).

The two joint logistics command and/or agency funded via working capital funds is the U.S. Transportation Command (USTC) and the Defense Logistics Agency (DLA). The degree of jointness is interesting once you consider that USAF four stars have Commanded USTC for the last decade with one exception of a U.S. Army four star not too long ago. The components of USTC are traced back to their Title 10 service with Air Mobility Command from the USAF also being commanded by a USAF four star. DLA has seen only one USAF three star as Director in the last two decades, which is odd since most of DLA sales value is with the USAF Customer. DLA's Major Subordinate Commands (MSCs) rotate services in their leadership with exception. Most of the time DLA Troop Support MSC is Commanded by an Army one star, while Land and Maritime MSC rotates between the USN and U.S. Army one stars. DLA Aviation General Officer leadership has been with the USAF for the last two decades. Maybe it is time for some Title 10 authority to be assigned to Joint Logistics Commands (JLC) geographically located with the Combatant Command they support. This would not require much of a change to legislation and authorities. If the JLCs were separate or reported to a four star headquarters, then that budget could be captured in the Defense Wide Budget Artifacts. Regardless, as Sec Rumsfeld famously stated after 9/11, you do not go to war with the Department of Defense you want, you go to war with the one you currently have. Changes like the ones mentioned here would need to survive multiple administrations to affect the necessary momentum for change. Until then, changes in the margins will need to be good enough.

The parting thought of this White Paper, as described in the beginning of it, is that **the impact of not being authors in the U.S. National Security Strategic Support Area will be devastating**, not only to American life, but also to the sons, daughter, mothers and fathers that will be lost in a war for which we are not prepared. We must not allow U.S. competitive advantage in the world of power projection, sustainment, logistics and the DoD Industrial base to become weakened.

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