

Prepare to be Disrupted

Operate logistics at the edge of technology

by Capt Alexander D. Irion

LtGen Victor H. Krulak noted in *First to Fight* that the underlying struggle for the Marine Corps' existence was integral to making it stronger. Every time the Corps has stagnated, he said, the pacing rabbit in the form of threat to its survival became faster and challenged it to higher levels of performance.¹ LtGen Krulak's sentiments are just as accurate today as they were in 1984. Today's pacing rabbit is competition for technological and military superiority amongst near-peer competitors in an era of great power competition. Prevailing in this environment of competing states demands flexibility in the Marine Corps' global procurement and distribution model. Better integrated and agile combat service support (CSS) systems enable global logistics awareness (GLA) and fundamentally change how the Marine Corps sources and distributes high-priority material to the MAGTF and to non-MAGTF aligned Marines supporting other elements of the naval or joint force.²

In order for future CSS concepts of operations to succeed against a great power competitor, the Marine Corps must integrate its existing procurement and distribution systems across the naval Services and with allies and partners to establish a transregionally aligned logistics operating network (TALON) sourcing and requisitioning system.³ The digital TALON system must be capable of countering adversary deterrence to existing distribution networks and include an educational continuum to ensure the naval force is capable of sourcing and requisitioning high priority material using the existing alignment of in-theater resources.

>Capt Irion is a Ground Supply Officer who has served with 2d Supply Battalion, Combat Logistics Battalion 26, and Marine Corps University. He is currently a student at the Expeditionary Warfare School.

By integrating data and technology from existing CSS systems, the future naval force can support interoperable procurement and distribution with its DOD counterparts, NATO, and other mutual defense treaty allies in a global logistics operating model.⁴ For functional concepts of logistics to be effective in the future operating environment, the United States naval Services must establish TALON as a consolidated sourcing and requisitioning tool that is uninterrupted, secure, shared, and in a common language with all of its DOD counterparts, NATO, and other mutual defense treaty allies; and educate the naval force to more effectively source high priority material using the existing alignment of in-theater resources.

Sustainment Operations in a Future Contested Environment

The recently released *Navy Leader Development Framework* (Version 3.0) notes that, to be dominant in a competitive security environment, the naval force needs to be armed with digital systems capable of learning and adapting faster than their rivals' platforms.⁵ Unfortunately, the digital CSS systems that currently support Marine Corps procurement and distribution are not flexible and are not capable of digitally interacting across the naval force or with allies and partners.⁶ This reality, com-

bined with the Marine Corps' responsibilities in the *National Defense Strategy's* (NDS) global operating model, demonstrate the naval force is currently unprepared to source, requisition, and distribute high priority material as outlined in the *Naval Logistics Integration (NLI) Playbook*.

The accelerated militarization of new domains, coupled with the increased proliferation of new technologies by the United States' adversaries, has shifted how a future contested environment will be fought and sustained.⁷ As explained in doctrinal publications such as *Made in China 2025*, Chinese academic, industry, and military experts are already exploiting the potential of converged data and communications systems—increasing China's ability to disrupt standard DOD distribution methods.⁸ When employed independently, the Marine Corps' procurement system, Global Combat Support System-Marine Corps (GCSS-MC), is not capable of sourcing material using the existing alignment of in-theater resources or conducting online requisitions from partnered DOD activities. As such, the Marine Corps lacks the ability to generate and maintain the force in a globally integrated and partnered design to deliberately outmaneuver adversary chokepoints utilizing total asset visibility of in-theater resources.

The Marine Corps' current single-sourcing strategies limit its ability to source from allied and partnered nations, making contingent sourcing and distribution networks difficult to establish and maintain.⁹ Studies of global supply chain disruptions emphasize the importance of dual or triple-sourcing strategies when the probability of a

disruption in distribution is high.¹⁰ The lack of integrated requisitioning systems limits the naval force's effectiveness in responding to disruptions in its distribution design. Future CSS concepts of operations will be unable to layer redundant sourcing and distribution architecture on the battlespace necessary to enable a global logistics operating model until requisitioning systems are integrated. Achieving NLI in accordance with the *38th Commandant's Planning Guidance* (CPG) will be difficult unless adaptable and decentralized supply chain models can create flexibility in disruptive conditions.

Enabling a Global Logistics Operating Model Through TALON

As the United States' adversaries move from a period of strategic patience to a period of active resistance, it is critical that the Marine Corps not let rigid thinking prevent it from operating in creative ways.¹¹ An adaptive procurement and distribution model enabled by mutually supportive CSS systems like TALON can create flexibility within the MAGTF and other force employment options if high-value distribution warehouses and combat logistics force (CLF) ships are targeted during an initial period of contact. China noted the United States' ability to provide logisti-

cal support to its major military operations in their 1999 publication *Unrestricted Warfare*, which "proposes tactics for developing countries to compensate for their military inferiority during a high-tech war."¹² This, combined with the decline in privately-owned Maritime Security Program (MSP) vessels, emphasizes the necessity for a more flexible and capable system of distribution and sourcing in support of the MAGTF and to non-MAGTF aligned Marines.¹³

To ensure relative combat power remains in the United States' favor, the naval Services must establish TALON as a consolidated sourcing and requisitioning system that supports a global logistics operating model nested in the NDS' global operating model capable of rapidly and deliberately avoiding choke points in its distribution architecture to generate combat power, avoid enemy ranges of fire, and influence how Marines preposition and utilize in-theater resources.

The CPG orients the Marine Corps toward strategic investments in data science focused on addressing challenges in logistics by leveraging the application of existing systems and tools.¹⁴ Existing systems—like *One Touch Support* (OTS) by U.S. Naval Supply Systems Command and the *Integrated Data Environment & Global Transportation*

Network Convergence (IGC) program through the United States Transportation Command (USTRANSCOM) and the Defense Logistics Agency (DLA)—provide the necessary data to establish and optimize a TALON sourcing and requisitioning system.¹⁵ The aforementioned systems collectively enable GLA by identifying the physical location of repair parts across the DOD.¹⁶ Converging the data provided by the aforementioned data systems in TALON would fundamentally change how the Marine Corps aligns and requisitions theater-first resources to support its forces at sea and ashore.¹⁷ Increased visibility of theater-first resources creates flexibility in sourcing and distribution methods supporting contingency maintenance as prioritized in the *NLI Playbook*.

The *NLI Playbook* provides policy and assigns responsibility for implementing NLI within the naval Services to support and sustain naval forces operating at sea and ashore.¹⁸ The *NLI Playbook* notes that inventory sourcing decisions should be made in consideration of factors such as criticality, availability, distance, distribution mode, timeline, and costs.¹⁹ In the absence of an integrated and consolidated sourcing tool, supply support activities lack the requisite information necessary to satisfy their demands with in-theater assets in accordance with guidance in the *NLI Playbook*, keeping them logistically tethered to their parent MEF regardless of their physical location in the world. However, migrating total asset visibility data from existing logistical systems in the consolidated TALON would provide increased visibility of DLA distribution warehouse stockages; demand supported items stocked at SPMAGTFs and partnered supply activities; and on-hand assets aboard CLF ships and MSP subsidies in times of war.²⁰ Enhanced total asset visibility of in-theater assets via an integrated system like TALON creates redundancy and survivability in the Marine Corps' sourcing methods and supports flexibility in how the naval force sources and distributes priority material to the MAGTF and non-MAGTF aligned Marines.²¹



MSC-chartered container ship MV Ocean Giant offloads at McMerado Station, Antarctica.
(Photo by Sarah Buford.)

Educating the Naval Force in Disaggregated Logistics

Threats to the United States' distribution networks are not regionally contained: they are global. The likelihood of conducting disaggregated operations with limited connectivity means that all forward deployed supply support activities need to be equally proficient in sourcing priority material utilizing a global logistics operating model enabled by TALON.²² To support the implementation of NLI and to decentralize the authority to create adaptive procurement and distribution models, the naval force must standardize how future forces will use TALON. Education focused on creative problem-solving in sourcing solutions and multi-echelon supply chain structures will optimize the use of in-theater assets and avoid suboptimal sourcing and distribution methods, which can otherwise have a negative impact on support to the MAGTF and to other force employment options.²³

Potential disruptions to existing supply chains can be mitigated by the effective use of multi-echelon supply chain structures like TALON, maximized by educating Marines to source from conceptual non-traditional sources of supply to include autonomous stand-in forces augments.²⁴ Enabling the intermediate supply force with an education in global logistics operating models will develop boldness, initiative, and creativity in sourcing methods. This education should focus on methods to weight the blunt layer²⁵ with focused and flexible distribution efforts supported by pre-staged items, in-theater resources monitored by intermediate supply activities, and strategy-driven thinking that emphasizes how and when to use in-theater assets to include Military Sealift Command and CLF vessels as potential sources of supply. The naval force must baseline knowledge of SPMAGTF in-theater assets and decentralize the ability to build contingency distribution networks to maintain transregional operations through globally operated persistent distribution networks.²⁶ Opportunities to test these concepts should be accomplished now via the MEF Logistics Coordination Offices and Ma-



The PLAN conducted underway-replenishment tests in November 2019. (Photo courtesy of People's Liberation Army.)

rine Rotational Force-Darwin, Marine Rotational Force-Europe, and naval exercises in the Arctic and Indo-Pacific. To maximize the use of TALON, the NLI education continuum should begin at the Ground Supply Officer Course and the Logistics Officer Course. The Marine Logistics Group should shape lifelong learning focused on creating decision advantages in a contested logistics model to shape how Marines analyze and support a contested environment focused on efforts from debarkation to delivery. The Commandant of the Marine Corps Fellows, particularly at the Pennsylvania State University and FedEx, should focus their efforts on data science capabilities in support of a global logistics operating model that enables data-driven logistics supporting the MAGTF and to non-MAGTF aligned Marines.²⁷ Existing partnerships with the Naval Postgraduate School, Marine Corps Warfighting Laboratory, and Massachusetts Institute of Technology Lincoln Laboratory provide opportunities for collaboration with industry professionals to support how the naval force integrates existing data systems to shape a digital transformation in its CSS systems to make TALON a more flexible and responsive distribution and sourcing network. Additionally, the Marine Corps should incorporate masters in data science programs for the senior-enlisted and chief warrant officer supply community to augment the existing supply force structure with

data-science professionals; their theses and projects would directly improve CSS performance by integrating industry solutions to study supply chain disruption-mitigation strategies impacting the naval force in a future contested fight.

The Cost of Enabling a Consolidated Global Logistics Operating Model

Those opposed to integrated procurement and distribution networks supporting the naval Services highlight that inefficiencies in decentralized requisition processes using multiple suppliers can increase the costs associated with multiple-point distribution networks.²⁸ In other words, the current standardization of the naval force's supply chains creates cost savings in ways decentralized models cannot. The United States naval Services' ability to effectively source and requisition in-theater repair parts with integrated CSS systems will increase distribution operating costs for the DOD.²⁹ These potential risks are noted in the *NLI Playbook*; however, guidance in the *NLI Playbook* promotes exploiting opportunities to reduce these operating costs by "increasing asset visibility among logistics providers to enable cross-servicing of critical requirements" to create flexibility in disruptive conditions.³⁰ The use of non-standard suppliers enabled by geographically-oriented sourcing methods will likely increase transportation costs but may be necessary to improve logistics response

time and counter adversary deterrence to existing distribution networks in ways that do not currently exist within the United States naval Services' supply chain architecture.

To create an effective disruption-mitigation strategy for a contested logistics model, the Marine Corps needs the ability to conduct online sourcing and distribution to counterpart DOD Activity Address Codes with lateral support from NATO and other mutual defense treaty allies. Fully implemented NLI and diversified distribution will be impossible until future systems like TALON are capable of conducting uninterrupted online ordering from all in-theater and partnered supply support activities.³¹ Integrating data systems can develop flexible distribution methods and enable lateral support from in-theater resources to reduce the operating costs of a global logistics operating model. U.S. Transportation Command and the DLA emphasize this approach in their use of theater-first resources that has "resulted in at least \$1.56 billion in distribution cost avoidances to date."³² Increased visibility of stocks and decentralized authority create flexible distribution and enhance performance-based logistical support. This opens cross-Service workspace collaborations between supply support activities reduces shipments from CONUS and unnecessary customs processing times, and generates faster turnaround times in the maintenance cycle.³³ Integrated procurement and distribution networks will help preserve the United States' lead in logistics performance and increase the United States' ability to outpace adversary decision making.³⁴

Logistics Performance at the Speed Of Relevance

The United States' threats have global reach and act with a global unity of effort across domains.³⁵ Global logistics operating models better support creativity in how the naval forces counter adversary deterrence and create cost imposition strategies for potential competitors. Shaping the continuum of tactical logistics in the threat-based operating environment creates flexibility in the naval CSS support structure and

prevents regional stovepipes of distribution that limit flexibility in a global operating model.³⁶ Visibility and access to multiple in-theater sources increases visibility of coalition stocks and fundamentally changes how a future fight is sustained.

The Marine Corps is at a critical stage where it needs to envision how to sustain the future force, distribute in a contested and communications-degraded environment, and shift to digital or intelligent logistics that emphasizes not only how to move physical parts but how to move and track data. Through strategic partnerships with the United States' technology industry, the United States naval Services can define new and advanced capabilities to converge data in its digital CSS systems. The future naval force must continue to exploit technology to enhance the potential of its logistics framework and deliver performance at "the speed of relevance," or prepare to be disrupted.³⁷

Notes

1. Victor H. Krulak, *First to Fight: An Inside View of the U.S. Marine Corps*, (Annapolis, MD: Naval Institute Press, 1999).
2. Headquarters United States Marine Corps, *Sustaining the Force in the 21st Century*, (Washington, DC: May 2019).
3. TALON is the author's conceptualization of an integrated sourcing and requisitioning system necessary to support the National Defense Strategy's global operating model and enable the foundational lines of effort in Sustaining the Force in the 21st Century.
4. Headquarters Marine Corps, *NLI Playbook Edition 4*, (Washington DC: May 2019).
5. United States Navy, *Navy Leader Development Framework Version 3.0*, (Washington, DC: May 2019).
6. Victor Castro, *A Transmission Control Protocol Analysis of Global Combat Support System-Marine Corps*, (U.S. Marine Corps Tactical Systems Support Activity, 27 September 2018).
7. James Lacey, "An Historical Look at the Future," (class lecture, "EF5310-Multi Domain Operations," Expeditionary Warfare School, Quantico, VA: August 2019).

8. Charles Rybeck, Lanny Cornwell, and Philip Sagan, "Applying America's Superpowers: How the U.S. Should Respond to China's Informatization Strategy," *War on the Rocks*, (September 2018), available at <https://warontherocks.com>.

9. Shivam Gupta, Vinayak A. Drave, Surajit Bag, and Zongwei Luo, *Leveraging Smart Supply Chain and Information System Agility for Supply Chain Flexibility*, (2019); Kizito E. Kanyoma, James K. Khomba, Eric J. Sankhulani, and Rabiya Hanif, "Sourcing Strategy and Supply Chain Risk Management in the Healthcare Sector: A Case Study of Malawi's Public Healthcare Delivery Supply Chain," *Journal of Management and Strategy*, (Hawthorne, CA: Sciedu Press, 2013).

10. Lawrence V. Snyder, Zümbül Atan, Peng Peng, Ying Rong, Amanda J. Schmitt, and Burcu Sinsoysal, "OR/MS models for Supply Chain Disruptions: A Review," *Iie Transactions*, (Milton Park, UK: Taylor & Francis, 2016); Hoda Davarzani, Seyed H. Zegordi, and Andreas Norrman, "Contingent Management of Supply Chain Disruption: Effects of Dual or Triple Sourcing," *Scientia Iranica*, (Tehran, IR: Sharif University of Technology, 2011).

11. United States Navy, *A Design for Maintaining Maritime Superiority Version 2.0*, (Washington DC: December 2018); Amin Tarzi, "Iran—Future Operating Environment Sub-Course," (class lecture, "EF5230-Iran Overview," Expeditionary Warfare School, Quantico, VA: 29 August 2019).

12. Gregory Simons, *The Changing Face of Warfare in the 21st Century*, (Routledge, 2019); Qiao Liang and Wang Xiangsui, *Unrestricted Warfare*, (Beijing, ROC: PLA Literature and Arts Publishing House, February 1999).

13. Department of Transportation, "The State of the U.S. Flag Maritime Industry," (Washington, DC: 17 January 2018), available at <https://www.transportation.gov>. See also "Applying America's Superpowers: How the U.S. Should Respond to China's Informatization Strategy."

14. Gen David H. Berger, *Commandant's Planning Guidance: 38th Commandant of the Marine Corps*, (Washington, DC: HQMC, July 2019).

15. Information available at <https://www.log-tool.com/>.

16. *Sustaining the Force in the 21st Century*.

17. *NLI Playbook Edition 4*. LtGen Charles G. Chiarotti, "A Letter from DC I&L," *Marine Corps Gazette*, (Quantico, VA: December 2018).

18. *NLI Playbook Edition 4*.
19. Ibid.
20. "The State of the U.S. Flag Maritime Industry."
21. *Commandant's Planning Guidance*.
22. James Acton, "Command and Control in the Nuclear Posture Review: Right Problem, Wrong Solution," *War on the Rocks*, (February 2018), available at <https://warontherocks.com>.
23. Ilaria Giannoccaro, "Centralized vs. Decentralized Supply Chains," *Industrial Marketing Management*, (Amsterdam, NL: Elsevier, 2018).
24. *Leveraging Smart Supply Chain and Information System Agility for Supply Chain Flexibility; Commandant's Planning Guidance*.
25. The blunt layer consists of "combat-credible and warfighting-oriented forces present forward to deter aggression or degrade/deny adversary objectives in a conflict." See Jordan Emmanuel and Justin Gray, "The Marine Corps' Evolving Character and Enduring Purpose," *War on the Rock*, (May 2019), available at <https://warontherocks.com>.
26. Stephen Stasevich, "Joint Concepts Program," (class lecture, "EW2075-US National Security Interest and Joint Considerations," Expeditionary Warfare School, Quantico, VA: 28 August 2019).
27. Kirk M. Spangenberg, Gregory Lucas, Stan Bednar, Jason Fincher, Leo Spaeder, and Miguel Beltre, "Data-Driven Logistics," *Marine Corps Gazette*, (March 2019); and "Joint Concepts Program."
28. Colin Williams, "Consolidation of Supply Functions under DSA Brought Efficiencies, Cost," Defense Logistics Agency, (Washington, DC: May 2019), available at <https://www.dla.mil>.
29. Information available at <https://www.businesswire.com>.
30. *NLI Playbook Edition 4*.
31. *Sustaining the Force in the 21st Century*.
32. "Consolidation of Supply Functions under DSA Brought Efficiencies, Cost."
33. Matt Clute, "Accelerating Performance Based Logistics Acquisition Excellence," Accelerating Performance Based Logistics Acquisition Excellence, (Washington, DC: March 2019), available at <https://www.navy.mil>.
34. *Commandant's Planning Guidance*.
35. Stephen Stasevich, "Joint Concepts Program," (class lecture, EW2075-US National Security Interest and Joint Considerations, Expeditionary Warfare School, Quantico, VA, August 28, 2019).
36. Ibid.
37. Department of Defense, *National Defense Strategy*, (Washington, DC: 2018).

