Naval Logistics Integration:
  • Mission & vision
  • Goals
  • Doctrine & concepts
  • Roadmap

Naval Logistics Integration Today and Tomorrow:
  • Current Ops
  • SECNAV Innovation Task Force
  • Future Logistics Enablers Development
  • Additive Manufacturing
  • Expeditionary Medical
“Our ability to effectively sustain our operating forces requires a naval logistics capability that provides continuous and reliable support to the warfighter – whether operating at sea or ashore.”

~ LtGen Mike Dana, USMC, Deputy Commandant for Installations and Logistics
Mission & vision

- **Mission.** The Sea Services will actively pursue courses of action to improve naval logistics to the fullest extent possible by integrating Service logistics capabilities and capacities; in order to ensure a naval logistics capability that can operate seamlessly afloat or ashore, successfully supporting and sustaining operating units in a joint warfighting environment.

- **Vision.** Achieve an integrated naval logistics capability that leverages current and future technologies, processes and organizations to enhance the Sea Service’s warfighting capabilities as set forth in the Maritime Strategy and Naval Operations Concept.

*Problem Statement: The USMC logistics enterprise cannot meet the operational requirements as envisioned in the MOC. The MAGTF lacks the logistics design, resources and material solutions required to meet the demands of a highly distributed, five domain force executing maneuver warfare across the ROMO*
Naval Logistics Integration in the next three years will:

- Serve as principal forum to coordinate among Naval Services
- Integrate Naval logistics systems
- Increase asset visibility of Naval logistics systems
- Integrate acquisition & life cycle management
- Broaden cross-training & educational opportunities
Naval Logistics Integration in the next ten years must include:

- Optimized expeditionary logistics footprint
  - Increased resilience, responsiveness, & flexibility
  - Self-sustaining
  - Scalable
  - Support full range of missions
  - Energy efficient
- Common logistics processes across Naval force
- Agile distribution to the smallest element

Long-Term Goals
Doctrine & Concepts

- **Doctrine:**
  - Secretary of the Navy’s Instruction, 4000.37A
  - A Cooperative Strategy for 21st Century Seapower
  - NWP 4-0/MCWP 4.2, Naval Logistics

- **Concepts:**
  - Marine Operating Concept
  - Naval Operations Concept
  - Distributed Maneuverable Logistics
  - *Expeditionary Advanced Bases (EAB)*
  - *Littoral Operations in a Contested Environment (LOCE)*
Col Edward Bligh, USMC
DC I&L (LPV) HQMC
Today & Tomorrow’s Naval logistics are guided by two operating principles:

- Support an Expeditionary-Austere-Lighter Mindset:
  - Minimize footprint ashore/Improve mobility with agile lighter units.
  - Deploy only mission essential resources – reduce reliance on established infrastructure.
  - Plan for sustained support on/from the sea.
  - Leverage non-traditional naval platforms and minimize large scale shore basing.

- Maximize organic capabilities and capacities through naval integration:
  - Tailor sustainment to support mission packages in disaggregated operations.
  - Work the agile naval logistics chain outside not just inside forward deployed naval units.
  - Leverage and complement Naval and DOD material distribution network.
  - Plan for A2AD environment.
This document provides a conceptual framework for how we will support the ARG/MAGTF of 2025 – and beyond. To achieve this vision, we must overcome several challenges. In today’s Marine Corps and the US Navy we are in the midst of an evolution in logistical affairs. On the one hand, our current inventory of aircraft, vehicles, ships and weapon systems is more lethal, maneuverable and survivable than any time in our history. On the other hand, these systems are heavier and more logistics-intensive.

This means that in the next 15-20 years, our naval service will experience a blend of old and new logistics as it conducts expeditionary logistics.

Today’s naval logisticians are on the cutting edge of naval logistics integration. It is incumbent on us to continue to advance and adapt to sustain – and increase – the competitive advantage we have gained today of the naval service through Naval Logistics Integration (NLI) and tomorrow through innovation.

As we transition to innovative enablers like AM, UAV, we will still have to move large quantities of fuel, water and ammunition throughout the future battlespace. However, Unmanned platforms, 3D printing and predictive maintenance have the potential to optimize tactical distribution, modernize the naval logistics chain and increase equipment readiness.

Naval will have to support ARG/MAGTFs operating as Sea bases across the range of military operations in all five domains of warfare. To do this, we are proposing an evolutionary shift in how sustainment is and will be provided support to forward deployed Units.
Problem Statement: The USMC logistics enterprise cannot meet the operational requirements as envisioned in the MOC. The MAGTF lacks the logistics design, resources and material solutions required to meet the demands of a highly distributed, five domain force executing maneuver warfare across the ROMO.
Man:

- Personnel Exchanges (Fwd Navy FLC’s, NAVSUP HQ, PMO HQ, LOGCOM, MCSC)
- Looking to improve Integrating FLC/DLC Expeditors and Navy CLO/CTF staffs (afloat/ashore)
- Working on possible assignment of NECC officer(s) on deploying MAGTF’s and Marine logisticians assigned to CNSL/CNSP, and other fwd Navy Commands (Fleet N4’s, CTF’s)

Equip-Process/Technologies:

- Sharing use of Navy’s Advanced Traceability and Control (ATAC) process for efficient/effective retrograde process of USMC critical secondary repairables for deployed units. Since 2003 moved 420,000 secondary repairable weighting 74.5M lbs at 800k annual cost with 99% POD.
- Sharing MCSC for logistics life-cycle management of Class II personal protective equipment. Currently Navy Liaison Cell within PM ICCE handles RDT&E and includes a Naval officer that is part of the Navy Supply Corp Internship program, and NAVFAC’s NEPO funds the civilian billet.
- Validating GCSS-MC/Navy ERP souring interface process via DLATS
- Sharing both Depot and Tactical level maintenance capabilities to include corrosion control.

Train:

- Adjusting EXLOG T&E curriculum with MCLOG–based on NCR MAGTF tour feedback and TSC missions
- Established MAGTF pre/post-deployment logistics briefs which provides DC I&L/OPNAV N4 an update on MAGTF logistics operations and challenges
- Expanding MARCORLOGCOM’s role as operational-level logistics enabler ISO MAGTFs with SMRR concept
- MARFOR Logistics for Deployed Forces Handbook-theater focused under annual review expanding based on TSC and SPMAGTF feedback
Materiel Distribution Chain in 7th Fleet AOR – Execution example

31st MEU depended on contracted items for Class IV. Consumables were sourced in theater via CLF/afloat stocks or local Supply Support Activity (SSA), primarily Okinawa. 31st MEU relied primarily on the Priority Material Office (PMO) and the CLB-31 RBE to source high priority material -- and trusted on our DLC distribution network to rapidly expedite the critical repair parts and SecReps that were not available in theater.
This document provides a conceptual framework for how we will support our naval expeditionary units of 2025 – and beyond. We are focusing our efforts on emerging logistics technologies and innovative concepts that increase or improve force maneuverability, sustainability, lethality, and survivability in the future five domain battlespace.

We are less concerned with solving current tactical problems and issues and more focused on fostering improved logistics concepts and enduring solutions. The goal is to identify and incorporate groundbreaking products, processes, or policies to transform advanced, innovative logistics concepts into agile, scalable capabilities. This document is intended to provide a strategic, umbrella framework for leveraging logistics innovation to provide flexible options to operational commanders across the range of future military operations.

Our Naval Expeditionary Logistics focus will give the Navy/Marine Corps team the ability to rapidly develop the responsive and agile architecture necessary to support and sustain operations in austere environments or in those lacking in robust infrastructure, frequently on short notice, and where operational requirements may dictate the dispersal of forces across a large geographic area.

The NLI concept and its complementary and mutually supporting methodologies and processes have provided a functional paradigm that has facilitated a fundamental change in how naval logistics is being conducted today. The NLI concept will continue providing a governance framework to guide new specific initiatives that will continue to focus on integrated logistics capabilities throughout the Navy and Marine Corps.

*Future Naval Logistics: Our logisticians must integrate mature and new technologies and processes – to reduce reliance on the “pipeline” and deliver precision logistics to units or all sizes from battle groups afloat to squads ashore in future operating environments.*
What Change Looks Like

Threat axes cross planes of maneuver --- we must bend the curve faster!
Proposed Solution Set

**Supply / Maintenance**
- Additive Manufacturing
- Condition Based Maintenance
- Water Purification
- Renewable Energy
- T-AVB MAGTF Maintenance
- Pipefish Fuel Storage
- Seabased Logistics

**Deployment and Distribution**
- Autonomous Subsurface Craft
- Autonomous Surface Craft
- Cargo Unmanned Aerial Vehicles
- JMICs
- Drones
- Autonomous Ground Vehicles
- Exoskeleton
- UHAC vehicle

**Command and Control**
- Digital Interoperability
- Decision Support Tools
- Data Cleansing
- Common Operating Picture
- Assured Data Exchange

**Other**
- Expeditionary Health Services
- Energy Weapons
- Improved Fuel Efficiency
- Non-Kinetic Adaptive Force Packages
- Company Landing Teams
Unmanned Logistics Systems – Air
Vision and Goals (Group 3-5)

- **Vision:** ULS provide highly automated and synchronous logistics capabilities in support of expeditionary MAGTF operations that offer increased flexibility and speed to Marines by means of seamless, end to-end logistics chain management and execution.

- ULS optimize the efficiency of Marine logistics functions. **Goals include:**
  - **FLEXIBILITY** – Providing options and alternatives for logistics functions
  - **LIGHTEN the LOAD!** - Focus on reducing loads carried by Marines *(not 3 days of supply, but supply 3 times a day!)*
  - **VELOCITY / TEMPO** - Increase speed and responsiveness of logistics functional support. *(resupply in days to resupply in minutes)*
  - **EFFICIENCY and EFFECTIVENESS** – Automate repeatable processes to increase human effectiveness over longer durations
  - **OPTIMIZE** - Reduce human *touch points*, in virtual (cyber) and physical domains to streamline distribution process

- **All With:**
  - **SIMPLICITY** – Any Marine can utilize ULS with limited or no instruction
  - **RELIABILITY** – Systems function and operate with minimal maintenance
  - **VISIBILITY** – Integrate C2 capabilities for in transit awareness and asset tracking
**Means (Two distinct lines of effort):**

1. **Large Scale Group 4/5 UAS** capable of delivering loads 2000-6000 lbs out to company level from the Seabase.
   - Interim Experimentation and Tactics Techniques and Procedures Development (AACUS UH-1)
   - MUX Group 4/5 Program of Record Development (long term solution)
     - TERN
     - ARES
     - V247
     - Karem KVU-5
     - Sikorsky RBW

2. **Organic (to LCE/GCE) Unmanned Logistics Systems (Group 3)** UAS capable of distributed loads out to squad level (targeting 20-800 lbs loads)
   - A smaller ULS (payloads ~ 50-250 lbs)
     - TRV-50
     - Other experimental platforms TBD
   - A medium ULS (payloads ~ 300-800 lbs. JTAARS CDD in development with Army)
     - Hover Bike
     - SkyFalcon
     - DP-14
     - GRIFF, Other?

**End State:**
- *In the future, Marine Corps Logistics support surges in speed, flexibility, assurance, efficiency, and effectiveness with the use of unmanned logistics systems in air, ground and surface environments.*
**Notional Unmanned Logistics Systems-Air Operational Concept**

**Immediate and Reliable Distribution (200-800 lbs)**
- Ammo
- Fuel
- Water
- Chow

**High Risk Company Distribution (resupply & retrograde) (2000-6000 lbs)**
- Batteries
- Repair items
- MRE

**Maintenance Awareness & Just in time parts**
- 25-75 nm
- 5-15 nm
- Sky Crane

**LSA/BSA/CSA**
- Interim KMAX or H-1
- MEDIUM ULS
- LARGE ULS

**Immediate and Urgent Distribution (20-150 lbs)**
- Batteries
- Repair items
- MRE

**Logistics C4**
- Maintenance Awareness
- 25-75 nm
- 5-15 nm

**LARGE ULS (MUX)**
- Ship to LSA
- Or Direct to need

**Combat Logistics Patrol**
- Itinerary vis

**Company CoC**
- High Risk Company Distribution (resupply & retrograde) (2000-6000 lbs)
- Maintenance Awareness & Just in time parts

**LSA/BSA/CSA**
- Interim KMAX or H-1
- MEDIUM ULS

**LARGE ULS (MUX)**
- Immediate and Urgent Distribution (20-150 lbs)
- Batteries
- Repair items
- MRE

**T-AKE**
- Immediate and Urgent Distribution (20-150 lbs)
- Batteries
- Repair items
- MRE

**Seabased Logistics**
- Immediate and Urgent Distribution (20-150 lbs)
- Batteries
- Repair items
- MRE

**PLATOON**
- Immediate and Urgent Distribution (20-150 lbs)
- Batteries
- Repair items
- MRE
CAPT Jason Bridges, USN
OPNAV N41
Col Howard Marotto, USMC
DC I&L (LPV3) HQMC
Why Innovate?

A Technology Imperative

Timeline of Defense Department Rate of Advancement

1st Offset: Post-WWII Years
2nd Offset: Cold War Years
3rd Offset?
Why Innovate?
An Offset Imperative

Timeline of Defense Department Strategic Offsets

First Offset
Nuclear Weapons
Purpose: Deter the Soviets
What: Support reduction in overall defense spending
1950s

Second Offset
Stealth & Precision Guided Weapons
Purpose: Strike Anywhere, Anytime
What: Stealth, GPS, Laser-guided weapons with unmatched accuracy and standoff
1970s

Third Offset
Manned-Unmanned Teams
Purpose: Seize emergent tech domains
What: Sustainment, Effectors, Sensors, C3I (Robotics, UxS, Autonomy, Big Data, Additive Manufacturing)
2015+
## AM Warfighting Benefits

### How

- **Lattice structures**
- **Multi-functional materials**
- **Embedded sensors and components**

### Warfighting Benefits

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- Armor
- Weapons/Munitions
- Medical implants and surgical tools
- Unmanned systems
- Platform components

- Improved field fabrication
- “Good enough” parts
- Environment-independent printers

- Consolidated assemblies
- Rapid reverse-engineering
- Support of depot and maintenance operations

- Rapid prototyping
- Urgent need response
- Warfighter prototyping

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AM is a critical enabling capability that has potential to revolutionize the supply chain and support technologies that will comprise our future Offset.
Evolutionary Improvements in Equipment Readiness

Enduring Themes:
- Digital Infrastructure
- Qualification/Certification
- Dept of Defense Policy
- Industry Business Model
- Workforce Training

Revolutionary New Capabilities

1. In-Field Fabrication
2. Obsolescent Manufacture & Repair
3. Supply Chain Reduction
4. Expeditionary Manufacturing & Repair
5. Advanced Additive-Enabled Systems

Expeditionary Goals: Reduce stockpile of spares, leverage critical nodes in Supply Chain, decrease Supply Chain complexity

Printing the “Iron Mountain”