Navy Expeditionary Logistics

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Changing Nature of Conflicts

- Conflicts in the recent decades may be characterized as "large wars" requiring logistics support in a small number of places but in large quantities.
  - Recent (WWII to present) campaigns were characterized by LARGE Movements.
    - Focus on efficiency – how do we move the "iron mountain" fast, cheap? How do we maintain "up time" on fleets of equipment fast, cheap?
    - Support hundreds of thousands of troops across a large contiguous geographic area.
  - Very little surprise with respect to logistics movements. Long duration…. 100 days to move and position, 100 hours to conquer.

Changing Nature of Conflicts

- What is likely to be the nature of most of the conflicts in the near future?
  - More like the early 20th Century before WW1 – conflicts are distributed; many low-level, ongoing conflicts with major power struggles simmering or on the horizon
  - For example, in 2017, more than 8,000 elite forces (Navy Seals, Army Delta,, and other Special Forces) routinely operated in a total of 143 countries around the globe (Hennigan, 2018).
  - Smaller (brigade size or less land forces), more distributed forces around the world requiring faster response times.
  - The above is not to say that "large wars" will not take place or that we do need to be prepared for them.

Logistical requirements will demand flexibility, speed, accuracy and reliability . . . but with a smaller footprint

- Current and near-future conflicts are strategic in nature but demand logistics support in many places in small quantities.
  - Many concurrent, ongoing counterterrorism, humanitarian, partner development operations
  - Support 100 or fewer people in hundreds of areas.
  - Need to move 100 people in 2 days. Operations may last weeks or years.
- Need to study **Expeditionary Logistics**

Research Methodology and Objectives

We adopt a two phased approach:

- Phase 1: Undertake a case study at NECC.
  - To better understand the current practices and challenges of expeditionary Logistics (ExLog)
  - To develop recommendations for improving the ExLog processes being studied
- Phase 2: Develop concepts useful for optimally designing and managing ExLog processes. Potential questions:
  - What is expeditionary logistics?
  - What are the key components and current practices in expeditionary logistics in the Navy?
  - What are the similarities and differences between ExLog and the traditional commercial logistics?
  - What are some of the best practices of the traditional commercial logistics that ExLog can benefit from?
  - How to successfully manage ExLog operations?

Current Status of Research

Phase 1

- Through site visits and informal interviews we studied the logistical support processes at Explosive Ordnance Disposal (EOD) unit of Navy Expeditionary Combat Command (NECC) organization.
- Supported by three teams of MBA students who worked on MBA projects, sponsored by ONR and ARP, under our guidance
  - Kundra et al. (2015), "Assessment of logistical support for expeditionary units". Resulted in a published case study (Yoho and Apte, "Navy Expeditionary Logistics", 2018).
  - Strand (2015), "Expeditionary logistics: how the Marine Corps supports its expeditionary operations".
  - Baker and Reeves (2017), "Assessment of logistical effectiveness for expeditionary units".
- Case studies are currently complete.

Phase 2

- Concepts and theory development work is ongoing.

Case Study

Navy Expeditionary Combat Command (NECC)

Coastal Riverine

Explosive Ordnance Disposal

Naval Construction (Seabees)

Navy Expeditionary Combat Command Mission:

Organize, man, train, equip, and sustain NECC forces to execute combat, combat support and combat service support missions across the spectrum of joint, combined, and multinational operations in green and brown water environments to include confronting irregular challenges in the near-coast, inshore, and riparian environments to include irregular warfare and other shaping missions that secure strategic access from the sea and global freedom of action.

Expeditionary Intelligence

Combat Camera

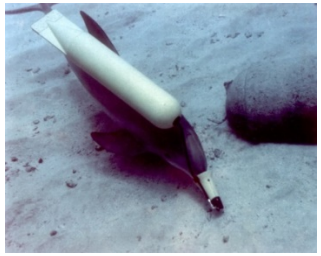
Expeditionary Logistics

Maritime Civil Affairs & Security Training

Expeditionary Combat Readiness

Explosive Ordnance Disposal (EOD) Mission Areas

- Mine Countermeasures:
  - Mine Countermeasures (MCM)
  - Very Shallow Water (VSW) MCM
  - Marine Mammal Systems (MMS)
  - Unmanned Underwater Vehicle (UUV)
- Support conventional combat units "Outside the wire"
  - Conventional Ordnance and Unexploded Ordnance (UXO)
  - Improvised Explosive Device (IED)
  - Home Made Explosives (HME)
  - Chemical, Biological, Nuclear, and Weapons of Mass Destruction (WMD)
- Special Operations Support: Embedded with SOF/NSW
  - Direct Action (DA)
  - Village/District Stabilization Operations (VSO/DSO)
  - Foreign Internal Defense (FID)
  - Combat FID
- Fleet Support
  - Anti-terrorism force protection (ATFP)
  - Flight Operations in support of CSG
  - Counter Piracy
  - Floating Mine Response (FMR)
- Support to U.S. Secret Service



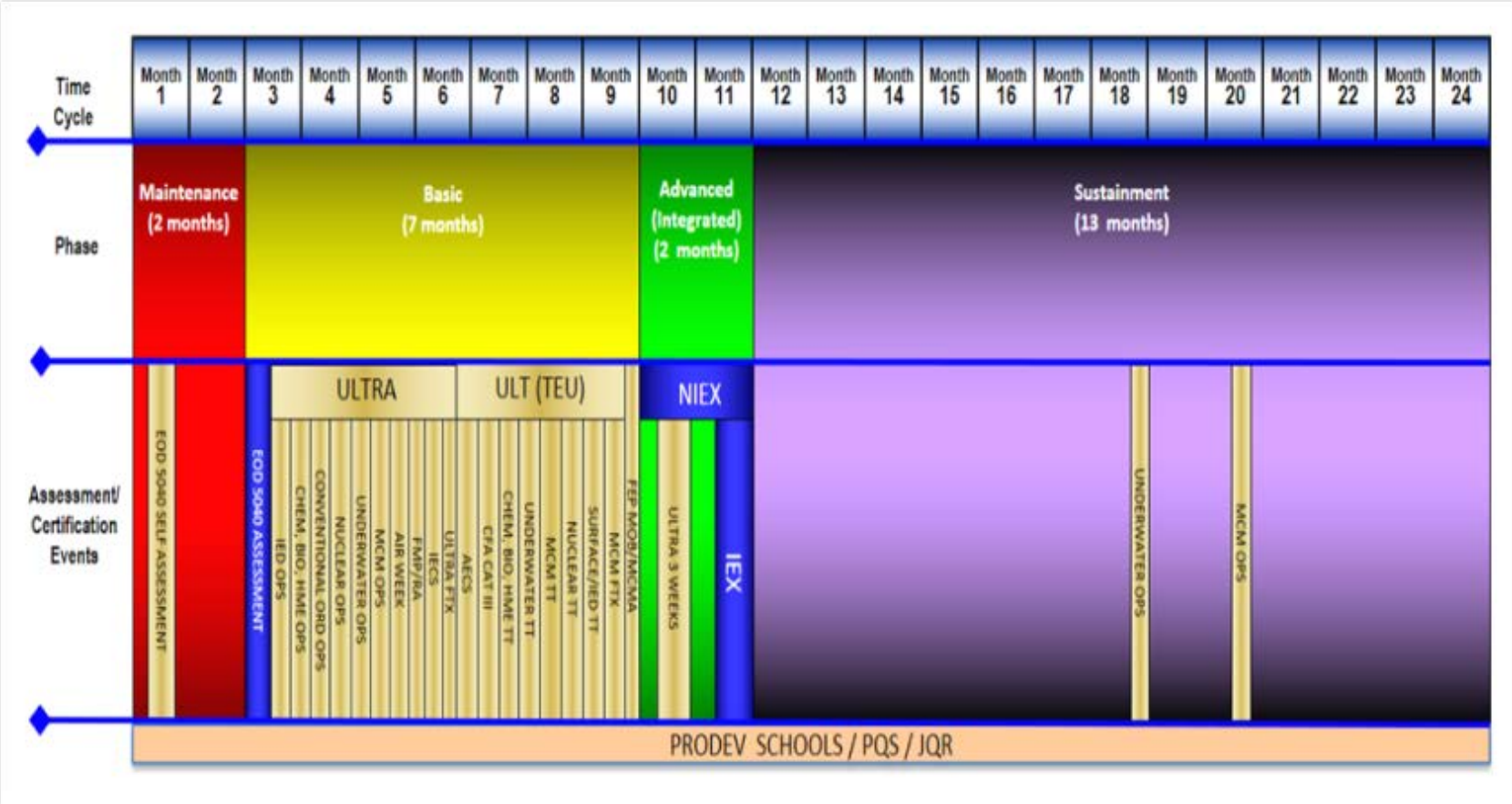
EOD Expeditionary Support Units (EODESU)

- EODESU provides logistical support to the EOD forces through financial, supply chain, and logistics management services.
- Two EODESU Units: Located in San Diego, CA, and in Little Creek, VA; each with about 200 personnel.
- EODESU provide general logistics and supply chain support and delivers a range of supply parts.
  - PGI (Personal Gear Issue)
  - TOA (Table of Allowances)
  - COSAL (Consolidated Shipboard Allowance Listing)
  - ELO (Expeditionary Logistics Overhaul)

EOD Expeditionary Support Units (EODESU)

- EODESU has a requirement to store information on an Accountable Property System of Record (APSR) system. ESU uses four different IT systems to track and store information regarding PGI, TOA, COSAL, and other material parts.
  - WASP (Warehouse Management System)
  - RCRP (Readiness and Cost Reporting System)
  - R-Supply
  - DPAS (DoD-required system that tracks property > 5K)
- In addition, EODESU also maintains two forms in hardcopy and electronic forms: DD 1149 and DD 200.
- EODESU provide support at various points in the 24 month Fleet Readiness Training Plan (FRTP) cycle during pre-deployment, deployment, and post-deployment stages.

EOD MCM Platoon Readiness Cycle



EODESU provide support at various points in the 24 month Fleet Readiness Training Plan (FRTP) cycle during pre-deployment, deployment, and post-deployment stages.

Process Mapping and Analysis:
ELO/Gear Issue Process – An Illustration

PGI and TOA gear is assigned a year out from deployment. This gives the assigned platoon an opportunity to train with their assigned equipment.

Mobile unit submits requirement request using a DD Form 1149 (Requisition and Invoice/Shipping form).

Supply department (for PGI) or Materiel department (for TOA) checks its WASP if the item is in stock.

(a) If in stock, it is delivered to the unit

(b) If out of stock,

(i) 30%: Navy NSN item:

Order through R-Supply

The order goes through Navy Supply System and funds are subtracted

When the item arrives, R-Supply is updated

The item is issued to the platoon and WASP is manually updated

(ii) 70%: Non-Navy NSN item is sent to the warehouse

If cost > $3,000 or performance period > 90 days, send to Contracting Department

Otherwise, open purchase:

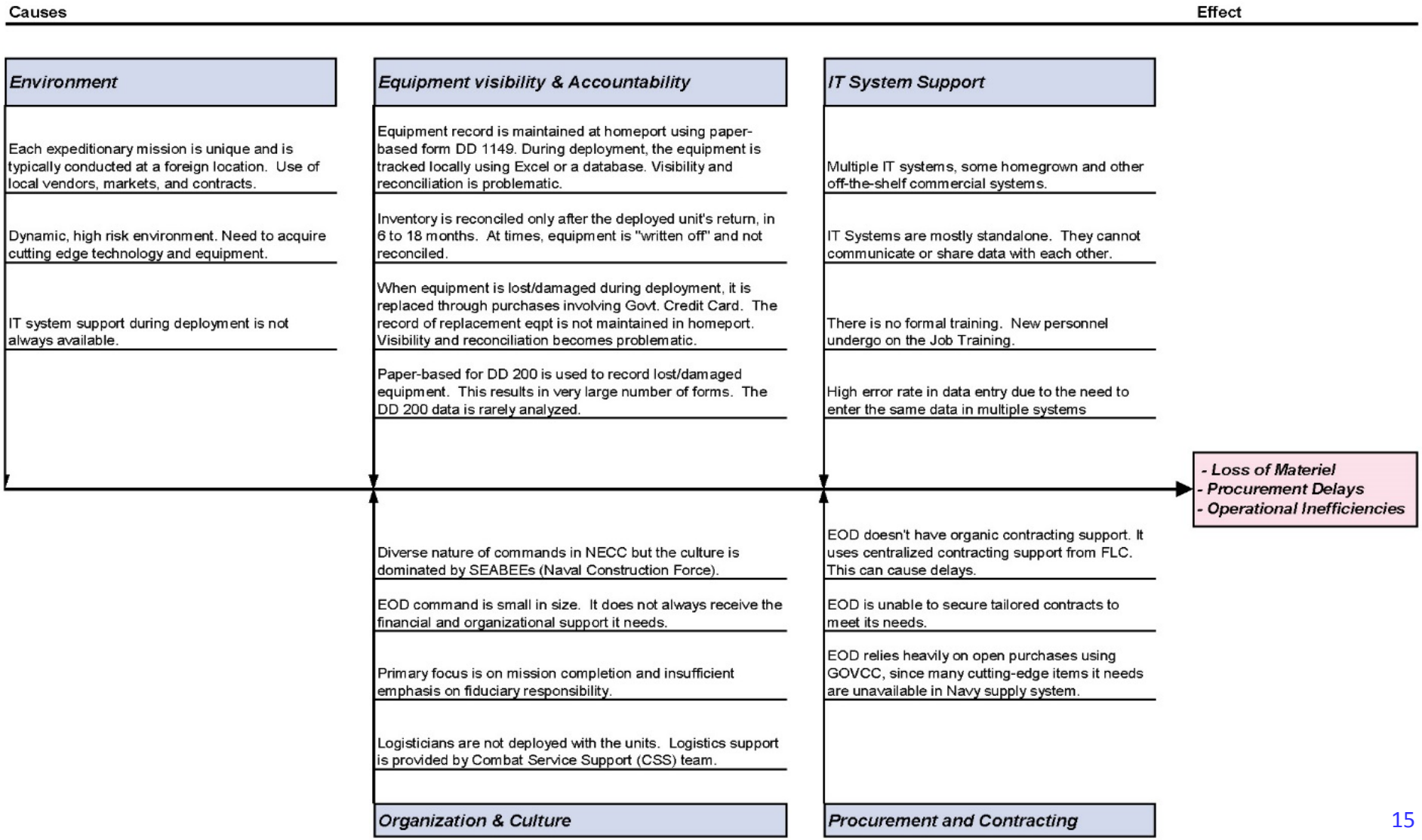
Order through R-Supply

Funds are obligated using GCPC and paid to the vendor

When the item arrives, R-Supply is updated

The item is issued to the platoon and WASP is manually updated

Cause and Effect (fishbone) Analysis



Recommendations to Improve Current ExLog Processes at EOD

- Information systems are highly inadequate and requires multiple manual entry processes. Develop and introduce new information systems that will support expeditionary logistics. As an interim step, develop interfaces to enable single entry of data.
- In designing new information systems first streamline the process and then create a design to capture the data that is needed to manage the inventory.
- Currently, everything is on-the-job training with little knowledge capture or dissemination. Develop and deliver specific logistics training and education.

Recommendations (Continued)

- When purchasing using government credit card (GCPC), the information about the items that is purchased, including how much or how often, does not get tracked. Need to record and analyze this data.
- Given the large amount of money that passes through EODESU, having a full-time contracting official could potentially save money and time.
- There is a temptation to believe that because each expedition is unique that you can just "make it happen." However, there are commonalities and they need to be studied scientifically to identify what is common and what can be standardized.

Developing Conceptual Framework for Expeditionary Logistics

What is Expeditionary Logistics?

- *Expedition* from Latin *expeditio(n-)*, from *expedire, i.e.,* extricate. A journey or voyage undertaken by a group of people with a particular purpose, especially that of exploration, scientific research, or war.
- The *DOD Dictionary of Military and Associated Terms* does not include Expeditionary Logistics (nor does it define "expedition"). The Department of the Navy's *Naval Expeditionary Warfare Vision 2010* revolves around the concept without ever explaining what it means (Hoffman, 2013)
- "The organization of a state's military to fight abroad, especially when deployed to fight away from its established bases at home or abroad" (Wikipedia)

Navy definitions

Expedition

- Not explicitly defined. However, it is generally understood as exploring or fighting far from home (Hoffman, 2013; American Dictionary)

Expeditionary Logistics

- Expeditionary Logistics is the science of planning and carrying out the movement and maintenance of an armed force organized to accomplish a specific objective in a foreign county. (Navy Tactical Reference publication 1–02).
- Expeditionary Logistics is comprised of six functional areas: Supply, Maintenance, Transportation, General Engineering, Medical, and Other Service (food, postal, MWR, etc.).

Marine Corps definitions

Expedition

- "A military operation conducted by an armed force to accomplish a specific objective in a foreign country" (Marine Corps Doctrinal Publication (MCDP) 3, p. 31)
- "An armed force organized to accomplish a specific objective in a foreign country" (Joint Publication 3.0, GL-9)

Expeditionary Logistics

- In general, the U.S. Marine Corps has an understanding that any force deployed to a foreign shore can be considered an expeditionary force (Strand, 2015)
- The U.S. Marine Corps interprets expeditionary logistics as all the support required to support an expeditionary operation (Strand, 2015).

Defining Expeditionary Logistics

- We believe that the logistical support needs differ based on the nature of military operation being supported.
- Military operations may be characterized by multiple attributes, including:
  - Nature of mission: short & unique vs. long & repetitive
  - Scale of operation: small vs. large
  - Scope of geography: small vs. large
  - Economic development of area: low vs. high
  - Level of risk: low vs. high
  - Operations tempo: low vs. high
- Towards a general theory of military logistics?

Expeditionary Operation: A Preliminary Definition

Nature of Mission

Scale of Operation	Short & Unique	Long & Repetitive
Large	Iraq – Operation Desert Storm (1990-1991) Panama (1989-1990)	World War II Korean War Vietnam War Iraq – OIF (2003-2012) Afghanistan – OEF (2002-2014)
Small	Niger (present) Libya (present) Saudi Arabia and Yemen (prsnt) Somalia (present) Expeditionary Operation?	Iraq & Syria – anti-ISIS (present) Afghanistan – OEF (2001) Afghanistan – ORS (2015 – prsnt)

Expeditionary vs. Commercial Logistics

Nature of Operation	Expeditionary Logistics	Commercial Logistics
Location	Foreign Country	Domestic and/or Foreign
Duration	Short Term	Long Term
Occurrence	Irregular	Routine
Demand	Variable	More predictable
SKU Variety-to-Volume Ratio	High	Low
Operational Tempo	Unpredictable, Relatively High	Steady
Level of Risk	High	Low
Desired Service Level	Very High due to low on-hand inventory levels	Medium to High due to the availability of local or regional distribution hubs
Distribution Dispersion	Low demand across many locations to serve few customers at each location.	Use of large distribution centers or retail locations to serve many customers.

Questions/ Comments/ Suggestions?