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Cost Effectiveness Analysis for Capitalizing Unit-Level Ship Inventories

June 2025

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ABSTRACT

Some U.S. Navy ships operate under Navy Working Capital Fund (NWCF) while others are mission funded. This thesis evaluates the feasibility, cost implications, and operational impacts of transitioning Navy ship inventories from mission-funds to the Navy Working Capital Fund. This study builds upon prior research by expanding the data set and incorporating updated logistics performance metrics. Using a Cost Effectiveness Analysis via the Multi-Objective Decision-Making framework, the study analyzes 30 months of supply effectiveness data, inventory valuation, and manning data. In addition to quantitative analysis, this thesis also incorporates qualitative analysis of procedural, policy, and cultural factors that influence transition feasibility. The analysis includes a cost estimate for inventory capitalization, an assessment of system compatibility, and a phased implementation aligned with the Optimized Fleet Response Plan. The findings show that NWCF platforms consistently outperformed mission-funded counterparts in terms of supply responsiveness and funding availability, particularly during periods of high operational demand. The projected annual transition cost was modest, with no major system or procurement disruptions identified. By combining quantitative and qualitative insights, this study provides a data-driven framework for Navy leadership to evaluate a potential enterprise-wide transition of unit-level ship inventory funding to the NWCF model.

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LIST OF ACRONYMS AND ABBREVIATIONS

AE	COSAL Allowance Effectiveness
BP	Budget Project
CBO	Congressional Budget Office
CEA	Cost-Effectiveness Analysis
CG	Guided Missile Cruiser
CMP	Continuous Monitoring Program
CNO	Chief of Naval Operations
CNO Avail	Chief of Naval Operations Availability
CNSF	Commander, Naval Surface Force
CNSL	Commander, Naval Surface Force, U.S. Atlantic Fleet
CNSP	Commander, Naval Surface Force, U.S. Pacific Fleet
COSAL	Coordinated Shipboard Allowance List
CVN	Aircraft Carrier
DDG	Guided Missile Destroyer
DEF-To-RO	Deficiency To Requisitioning Objective
DLR	Depot Level Repairable
DoD	Department of Defense
DON	Department of the Navy
DTO	Direct Turnover
EMRM	Equipment Maintenance Related Material
GAO	General Accounting Office
GE	Gross Effectiveness
I-Level	Intermediate Level
ILO	Integrated Logistics Overhaul
IT	Information Technology
LHA	Landing Helicopter Assault Amphibious Warfare Ship
LHD	Landing Helicopter Dock Amphibious Warfare Ship
LPD	Landing Platform Dock Amphibious Warfare Ship
LS	Logistics Specialist
MCM	Mine Counter Measure Ship

MF	Mission Fund
MILSTRIP	Military Standard Requisitioning and Issue Procedures
MODM	Multiple Objective Decision Making
NAVSUP	Naval Supply Systems Command
NE	Net Effectiveness
NETPDTC	Naval Education and Training Professional Development and Technology Center
NWCF	Navy Working Capital Fund
O-Level	Organizational Level
OFRP	Optimized Fleet Response Plan
OPTAR	Operating Target
POM	Pre/Post-Overseas Movement
PRRV	Pending Requisition Release Value
R-Supply	Relational Supply
RoR	Reorder Review
TYCOM	Type Commander
WSS	Weapon Systems Support

I. INTRODUCTION

Efficient inventory management is essential to maintaining operational readiness of U.S. Navy ships. Currently, Navy surface platforms operate under two distinct inventory funding models. End use ships such as Landing Platform Docks (LPDs), Guided Missile Destroyers (DDGs), Guided Missile Cruisers (CGs), and Mine Counter Measures (MCM) ships rely on mission funds, while force-level ships such as Nuclear Aircraft Carriers (CVNs), Landing Helicopter (LHAs), Landing Helicopter Dock (LHD), and USS Normandy (CG-55) use the Navy Working Capital Fund (NWCF).

Additionally, this study responds to a Navy Supply Systems Command (NAVSUP) leadership task to evaluate the feasibility and implementation plan for transitioning MF surface platforms to NWCF. To respond to the task, we assessed the potential benefits, risks, and costs of such a transition and identified implementation considerations, including manpower, systems readiness, and organizational adoption.

A. OVERVIEW

While prior efforts (Cormier and Carroll, 2013) and the USS Normandy NWCF Pilot Project explored the impacts on supply effectiveness and readiness between MF and NWCF, there is still no structured process for evaluating the feasibility, cost, and logistics of transitioning MF ships to the NWCF. This study builds on Cormier and Carroll's 2013 thesis by incorporating 30 months of updated supply data and expanding the scope to include implementation planning, inventory valuation, manning, and inventory management systems considerations. By conducting a cost effectiveness analysis, this research compares supply effectiveness onboard ships across the two different funding models. This report provides NAVSUP leadership with a direct comparison of funding methods and offers actionable recommendations should leadership determine that transitioning Navy unit-level ship inventories from MF to the NWCF is appropriate.

B. BACKGROUND

The Navy employs two primary funding models for shipboard inventory: MF and NWCF. This discussion outlines their differences and examines wholesale versus retail inventory ownership, supply readiness, and supply effectiveness metrics. These concepts formed the basis for understanding the inventory's financial structure, ownership responsibilities, and management practices aboard Navy ships, and provided a framework for evaluating their impact on supply chain responsiveness, financial accountability, and operational performance.

1. Inventory Funding Models: MF and NWCF

Mission funding is utilized to purchase inventory onboard smaller combatant ships such as DDGs and CGs, which are often referred to as unit-level ships. Under MF, each unit receives an annual Operational Target (OPTAR) allocation from direct congressional appropriations (Congressional Budget Office [CBO], 2007). These funds are used to purchase inventory and sustain the ship's operations.

In contrast, the NWCF operates as a revolving fund applied to larger platforms inventories, such as CVNs, LHDs, and LHAs, which are often referred to as force-level ships. NAVSUP retains inventory ownership until the ship submits a requisition, after which the ship reimburses NWCF using OPTAR funds (Naval Education and Training Professional Development and Technology Center [NETPDTC], 2002). NWCF enables centralized control and, theoretically, provides greater cost transparency and financial traceability.

2. Wholesale vs. Retail Inventory Ownership

A fundamental difference between MF and NWCF lies in how inventory ownership is managed. With mission funding, inventory is expensed from wholesale sources and immediately becomes the property of the ship and its Type Commander (TYCOM). This materiel is considered "retail-owned" once it arrives on board. Figure 1 provides an enhanced understanding of this process.

In the NWCF model, the inventory remains part of NAVSUP's wholesale account even after being delivered to the ship. It is only transferred to the unit and expensed when formally requisitioned. As a result, NWCF-funded ships function more like afloat supply depots, holding wholesale-owned inventory that can be accessed and billed on demand, as reflected in Figure 2. This distinction has important implications for accountability, inventory valuation, and funding flow.

3. MF and NWCF Process Flow

As shown in Figure 1, MF ships use OPTAR funds upfront to purchase inventory (NAVSUP, 2005). Once a requisition is processed through the One Touch Support (OTS) system via a Military Standard Requisition and Issue Procedures (MILSTRIP) upload, OPTAR funds are obligated, the materiel is delivered, and ownership transfers to the ship. If the requested part is already onboard, it is issued without additional cost, having been previously paid for during initial stocking. This model ties inventory availability directly to real-time OPTAR funding, which can delay procurement and reduce flexibility.

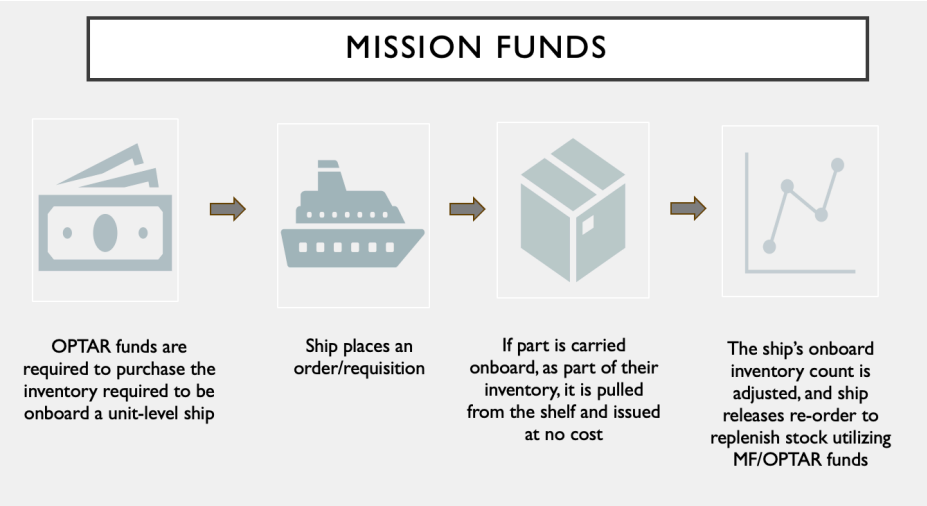

Figure 1. Process Diagram for MF. Adapted from NAVSUP (2005)

This contrasts with the NWCF process, which defers OPTAR reimbursement until a requisition is issued, shifting inventory ownership, funding flow, and supply responsiveness. NWCF is based on a customer-provider model mandated under the 1947

National Security Act (Department of Defense [DoD], 2023). The system is designed to operate on a break-even basis, with congressional appropriations serving only to recapitalize the fund. Inventory costs include storage, handling, and other overheads; pricing is managed to recover those costs over time.

Force-level (NWCF) ships do not own their onboard inventory; instead, NAVSUP retains ownership until parts are formally requisitioned. As illustrated in Figure 2, when a part is pulled, NWCF is reimbursed by the ship's OPTAR. Until that point, the parts remain wholesale-owned and unavailable for use, making these ships function like afloat supply depots.

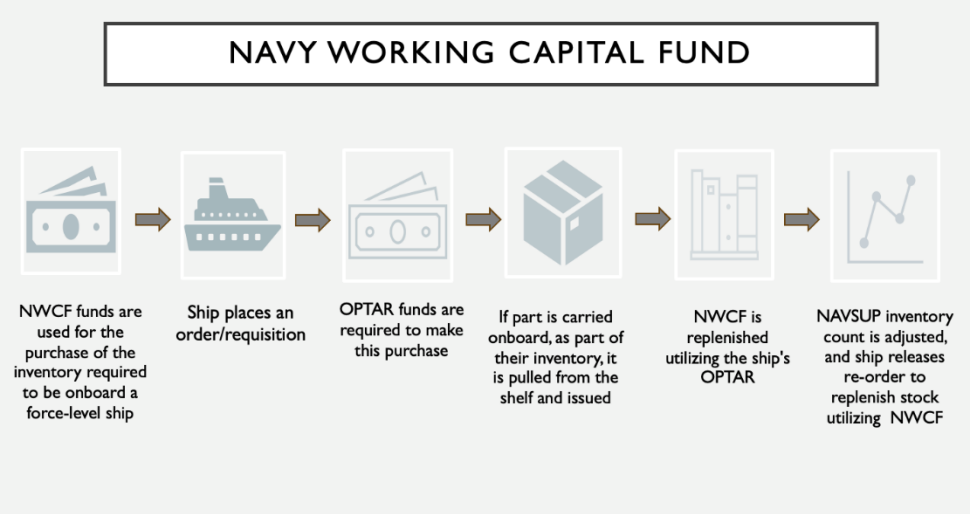

Figure 2. Process Diagram NWCF. Adapted from NAVSUP (2005)

4. Supply Readiness and Effectiveness Metrics

Supply readiness is a critical component of operational effectiveness for any Navy ship. A ship's ability to meet its materiel requirements directly impacts its mission capability, maintenance efficiency, and overall fleet readiness. Each ship is equipped with a tailored inventory based on its platform size, operational mission, and the complexity of onboard systems. These inventory requirements are governed by the Coordinated Shipboard Allowance List (COSAL), a structured logistics baseline that identifies the

specific range and depth of parts needed to support the ship's equipment and mission profile (NAVSUP, 2003).

The COSAL is designed to ensure ships are adequately equipped to operate independently during deployments, minimizing the need for frequent external resupply. To evaluate how effectively a ship's inventory supports this objective, the Navy uses several standardized supply effectiveness metrics**,** which are tracked through the Continuous Monitoring Program (CMP). CMP provides real-time metrics to assess and improve shipboard logistics readiness by monitoring supply performance, inventory accuracy, and requisition processing efficiency, and is applied consistently across both MF and NWCF ships.

The three principal effectiveness metrics used in this study are:

1. Gross Effectiveness (GE)**:** Measures the percentage of all onboard materiel requests that can be filled from existing storeroom stock (NAVSUP, 2005). It provides a broad indicator of supply support capability without regard to request type or priority.
2. Net Effectiveness (NE): A refined version of GE, net effectiveness excludes certain demand categories such as planned maintenance system (PMS) items or non-COSAL requisitions (NAVSUP, 2005). It more accurately reflects responsiveness to operational demands.
3. COSAL Allowance Effectiveness (AE): Measures how well the onboard inventory aligns with the authorized COSAL (NAVSUP, 2005). Specifically, it reflects the percentage of COSAL-demanded items carried onboard, directly indicating how closely the ship adheres to its prescribed logistics baseline.

Together, these metrics serve as standardized benchmarks for evaluating the materiel readiness of ships across different funding models. Although NWCF and MF platforms vary in how inventory is financed and managed, supply effectiveness remains a universal standard for operational performance. This study leveraged these metrics to

assess whether inventory funding models influence readiness outcomes and to support a data-driven evaluation of potential policy changes.

C. PURPOSE

Carroll and Cormier (2013) evaluated the applicability, effectiveness, and financial impact of transitioning to NWCF, finding that end-use offers higher supply effectiveness at the ship level. While they found NWCF provides greater cost efficiency, budget flexibility, and enterprise-wide asset visibility, their analysis left several other key questions unanswered. Their study did not address implementation costs or optimal transition timing, highlighting the need for a more comprehensive, data-driven framework to evaluate a fleet-wide shift to NWCF.

This research focused on addressing those gaps by building on previous findings and introducing a more wholistic analysis using thirty months of standardized logistics performance data across MF and NWCF platforms. It also re-evaluated whether transitioning to NWCF improves operational effectiveness and financial sustainability, while examining the organizational and implementation trade-offs involved. In addition to assessing performance metrics, this study estimated inventory capitalization costs, identified manpower and system impacts, and explored the optimal timing for transition based on the Navy's Optimized Fleet Response Plan (OFRP), a 36-month cycle structured around maintenance, training, deployment, and sustainment phases (CNO, 2014).

The following research questions guided the study:

Primary Research Question

1. What is the financial viability, operational effectiveness, and overall impact of transitioning ships in the U.S. Navy from MF to NWCF?

Secondary Research Questions

2. What is the impact of unit-level ship inventory capitalization on operational readiness?
3. What are the projected inventory, manpower, and systems costs of transitioning ships from MF to NWCF?

4. During which Optimized Fleet Response Plan OFRP phase should the transition occur to minimize operational disruption?

5. What qualitative factors are involved regarding the transition of ships from MF to NWCF?

This study used a Cost Effectiveness Analysis framework via the Multiple Objective Decision Making Model (MODM) to evaluate both quantitative and qualitative factors related to the funding transition. Key CMP metrics, GE, NE, AE, and Pending Requisition Release Value (PRRV), were analyzed across a representative sample of NWCF and MF platforms. Inventory valuation data from Fleet Inventory Management and Reconciliation System (FIMARS) and manpower data from Fleet Training Management and Planning System (FLTMPS) supported cost modeling and feasibility assessment. Utilizing the Optimized Fleet Response Plan (OFRP) construct, this study identified the most appropriate phase for implementing the transition. Together, these resources are expected to provide Navy leadership with a comprehensive framework to evaluate inventory capitalization effectiveness and informed decision-making on whether, when, and how to transition surface ship inventories from MF to NWCF funding.

D. SCOPE AND LIMITATIONS

Several limitations impact the scope of this study. First, while CMP provides consistent, fleet-wide performance metrics, the analysis assumes relative stability in historical trends, despite potential variations in OFRP cycles, funding levels, or shipboard practices. Second, data quality may be affected by inconsistent entry or intentional manipulation, impacting the accuracy of CMP metrics. Third, manning and operational assumptions are based on current billet documentation and treated as static, though real-world transitions may require personnel adjustments not captured in this analysis. Lastly, and most limiting, was the absence of data from the 2008 USS Normandy NWCF pilot, which prevented this research from directly modeling a unit-to-force level ship transition and assessing previously recorded impact on operational effectiveness.

E. ORGANIZATION

This thesis is organized into five chapters progressing from foundational contexts to conclusions. This chapter introduced the topic, explained the purpose of the study, and provided essential background on the Navy's fleet inventory funding structures, along with the scope and limitations of the research. Chapter II critically reviews the existing literature on military inventory funding models. It identified knowledge gaps in prior research and situated the present study within the broader context of logistics and financial management in naval operations. Chapter III outlines the data sources, systems, and standardized performance metrics used in the analysis and describes the methodological approach for evaluating operational effectiveness and cost feasibility. Chapter IV displays the analytical approach and findings, applied quantitative and qualitative evaluation methods to address the research questions. Chapter V concludes the study with final conclusions, policy implications, and recommendations.

II. LITERATURE REVIEW

Understanding the differences between Navy inventory funding models is essential to evaluating the effectiveness gained and the feasibility of transitioning unit-level ship inventories from a MF to NWCF structure. Existing research outlined the basic distinctions between the two, MF's reliance on annual appropriations versus NWCF's cost-recovery approach, but offered limited insight into real-world implementation challenges, system and manning impacts, and application feasibility.

While the USS Normandy pilot provided the only documented case of a mission funded to NWCF inventory transition, the absence of underlying data restricted its value for broader analysis. Additionally, prior studies often overlooked critical factors such as administrative workload, personnel requirements, and systems compatibility. The following review examined the most relevant literature and identified key gaps that inform the need for this study's expanded dataset and structured analytical approach.

A. FUNDING AND COMPARATIVE ANALYSES OF RESOURCES

To effectively analyze the difference between the two funding models, it is necessary to understand the fundamentals of both funding models and of how allocation occurs. The key distinction lies in NWCF's structure as a cost-recovery model, which reimburses expenses rather than relying on annual congressional appropriations (DoD Financial Management Regulation, 2015). This framework reduces dependence on uncertain budget cycles by enabling more predictable and stable funding for logistics and maintenance activities (CBO, 2007). As a result, the NWCF has garnered attention for its potential to improve financial management and operational efficiency.

Norell et al. (2019) serves as a key reference for understanding how Working Capital Funds can enhance operational flexibility, cost transparency, and resilience during periods of funding volatility. Norell et al. (2019) provides a view that, when properly managed, NWCF structures can improve mission execution and long-term investment planning, which are critical factors in evaluating the NWCF's suitability for mission funded platforms.

Cain (2006) examined the operational and financial impacts of the two funding models in the context of Navy maintenance activities. By analyzing trade-offs in cost visibility, managerial flexibility, and budgeting processes, Cain provided a framework for assessing funding effectiveness. This resource directly informed the present study by highlighting the practical challenges and benefits of each funding model. These insights are critical to evaluating the feasibility, cost, and performance impacts of NWCF implementation on mission funded platforms.

Carroll and Cormier's (2013) report is a foundational study that examined the financial and operational impacts of the different inventory funding models on mission funded ships. Using the USS Normandy (CG 60) as a pilot case, the authors evaluated whether the NWCF or MF inventory provided superior supply effectiveness and financial performance. The study compared Normandy's performance before and after transitioning to NWCF against other guided missile cruisers and amphibious assault ships, using metrics such as gross and net supply effectiveness and Equipment Maintenance Related Materiel (EMRM) obligations as a metric for funding availability. It established baseline performance metrics critical to this research and highlighted cultural, administrative, and logistical considerations that continue to influence the way logistics is conducted throughout the fleet. This research followed a similar approach as the Carroll and Cormier report but utilized additional performance metrics and primarily focused on establishing a Measure of Effectiveness (MOE) value and a summation of costs to implement such transition.

The 2024 report by the National Academy of Public Administration (NAPA) emphasized NWCF's strengths in cost transparency, effective cost recovery, and price stability, while noting its ability to leverage market fluctuations to improve purchasing efficiency. Cain (2006) and Carroll and Cormier (2013) also highlighted NWCF benefits pointing to how businesslike incentives and long-term financial planning improve supply efficiency and readiness. Carroll and Cormier's (2013) review of the USS Normandy pilot showed that switching to NWCF funding enhanced supply readiness without impacting financial or operational performance. The Congressional Budget Office (CBO, 2007) added that while both NWCF and mission funding involve trade-offs, NWCF provided

greater cost visibility and, potentially, stronger managerial incentives, even if no clear operational performance advantage was found between the two funding models.

B. FUNDING STABILITY

Cormier and Carroll (2013) found that NWCF has no significant financial benefit because its efficiency gains are offset by increased administrative complexity. They argued that the cost-tracking requirements and revenue adjustments made MF a simpler alternative model. CBO (2007) also noted that NWCF's cost-recovery pricing model may exaggerate procurement costs and reduce asset utilization. As a result, while NWCF offers greater cost visibility, its administrative burden and pricing structure may ultimately limit its operational advantage over the simpler, more flexible MF model.

On the other hand, Cain (2006) stated that NWCF improves cost-effectiveness by balancing inventory spending with operational demand, thereby mitigating issues associated with procurement delays and increasing financial flexibility. Cain offered that NWCF promotes efficient use of resources, reduces wastage, and increases budget predictability. Norell et al. (2019) backs NWCF, citing "increased financial viability, supply chain efficiency, and shorter procurement cycles." NWCF enables real-time inventory management, allowing ships to adjust procurement to mission requirements instead of fixed budgets.

This debate begs the crucial question: Is NWCF financially flexible enough to justify its administrative cost? Whereas Cain focused on efficiency gains, Cormier and Carroll highlighted bureaucratic inefficiencies that may outweigh cost benefits. It is important to recognize that the structure of shipboard inventory management and TYCOM oversight has evolved since 2013 when the most recent study was accomplished. While TYCOM oversight of NWCF platforms was traditionally more stringent, the change of inventory management practices aboard both NWCF and MF platforms has led to a significant convergence between the two. While the procedural differences in inventory management have become minimal, this analysis incorporated the administrative cost implications for Naval Supply Systems Command (NAVSUP), attributing these costs not

to an increase in inventory management processes, but to the expansion in the number of line items that NAVSUP will be required to manage under the new model.

While acknowledging the financial viability of NWCF, the NAPA report (2024) provided a critical reflection on contemporary governance issues that earlier literature did not address. Despite NWCF's operational soundness, NAPA (2024) identified fragmented decision-making and lack of cross-organizational understanding that have undermined the fund's financial viability and, consequently, operational readiness. This insight builds on Cain (2006) and the CBO (2007) analyses which primarily addressed the structural and fiscal characteristics of NWCF and mission funding without addressing more general decision dynamics. NAPA (2024) also noted that funding transitions, such as removal of shipyards from NWCF, while rational, can erode cost transparency and undermine sustainable resource management unless supported by strong oversight and data-driven decision frameworks (CBO, 2007; Cain, 2006).

C. CONCLUSION

The existing literature offered a useful foundation for understanding the structural and functional differences between NWCF and MF inventory models. However, significant gaps remain, particularly in the areas of implementation feasibility, personnel and systems costs, and operational effectiveness impact. Much of the current research is constrained by limited datasets and lacks consideration of transitional dynamics that affect real-world outcomes.

These limitations underscore the need for a more comprehensive, data-driven approach. The present study built on prior work by addressing these gaps through a broader and more representative dataset, updated performance metrics, and structured cost-effectiveness analysis. This foundation not only strengthened the analytical framework of this research but also positioned it to offer more practical and operationally relevant insights into the potential transition of small surface combatants from MF to NWCF funding structures.

III. DATA AND METHODOLOGY

This chapter summarized the data collection methods used and explained their relevance to the research objectives. It also detailed the analytical frameworks applied, including the comparative research basis and cost analysis methodology, and concluded with a discussion of key assumptions and limitations that may influence how results are interpreted.

To conduct a structured comparison of cost and effectiveness between funding models, the study employed a Cost-Effectiveness Analysis (CEA) via the MODM framework. This approach provided the basis for inventory valuation, systems feasibility assessment, and performance evaluation. To address the study's primary and secondary research questions comprehensively, a MODM methodology was adopted. This allowed for the integration of both quantitative metrics and qualitative considerations in evaluating the potential transition from mission funding to the NWCF model.

The selected MODM methodology is justified by its ability to integrate key effectiveness metrics while accounting for fluctuations in preferences that various decision makers may have. For example, a key decision maker could value performance metrics higher than funding availability. As such, the weighting for each objective metric can be tailored to those unique preferences. Previous research, most notably Carroll and Cormier (2013), relied heavily on the USS Normandy NWCF pilot (2008–2011); however, original source materials from that effort, including point papers, managerial records, and supporting documentation, are no longer available. Consequently, this study draws on a 30-month dataset from CMP to capture performance across various life cycle phases, accounting for fluctuations in supply readiness, supervisory oversight, and personnel transitions over time.

A. DATA SOURCES AND VALIDATION

The sources of quantitative and policy-driven data used in this study are outlined below, along with the validation measures taken to ensure their reliability. A comprehensive foundation for analysis was established by integrating multiple logistics,

financial, and personnel reporting systems, and aligning them with governing supply regulations.

1. Continuous Monitoring Program (CMP)

The CMP is an authoritative tool used across the fleet by supply officers and TYCOMs to assess supply readiness (Commander, Naval Surface Force [CNSF], 2008). This research focused on four primary logistics effectiveness metrics: gross effectiveness, net effectiveness, COSAL allowance effectiveness, and pending requisition release value. These metrics are collected monthly in CMP, enabling real-time monitoring of a ship's supply posture. They are considered "pulse points" and can be thought of as a quick snapshot of the overall health of the supply and logistics operations aboard the ship. In an ideal world, all effectiveness metrics would be at 100% and PRRV would be zero. This ideal scenario would mean that anything and everything the ship needs would be immediately available in stock and ready for issue and with a limitless amount of money to do so. Obviously, this is not a likely scenario, but ships strive to achieve the highest performance metrics while generally keeping PRRV as low as possible.

CMP data was extracted with a two-and-a-half-year window, the longest available timeframe based on current system permissions and data retention policies. Each ship's Relational Supply (RSUPPLY) a logistical information system collects and provides the raw data input to CMP in order to compute the metrics. It then uploads to the CMP dashboard and verified by TYCOM readiness staff. Performance metrics were broken down and compared by their individual OFRP phases that each ship was currently in to account for natural fluctuations in logistical demand. These phases are broken down into maintenance, basic, advanced, sustainment, and Integrated Logistics Overhaul (ILO).

Ships undergoing an ILO will not report monthly CMP metrics, and as such, these months are reported as a zero value within CMP and were removed from the data. Each phase of the ship's life cycle within the OFRP framework is given varying priority for requisition fill rate and shipping priority (NAVSUP P-485). Ships preparing to deploy or in ongoing sustainment operations are given higher priority than say, a ship undergoing extensive shipyard maintenance. The varying priority given to each ship based on OFRP

phase can skew data for fill rates of needed parts and common items onboard. Comparing the performance metrics in this way gives a more accurate representation than looking at the data solely from a linear timescale perspective.

The CMP datasets utilized were checked for anomalies outside of the ILO phase for any unreported values from ships that would have resulted in a zero score for the month and otherwise would have skewed the data.

2. Fleet Inventory Management and Reconciliation System

FIMARS, operating under the Navy Data Platform, is a system designed to provide real-time inventory valuation and visibility across surface units (Naval Supply Systems Command, n.d.). The use of this system was suggested for this study by LCDR Ari Hague (personal communication, January 2025), because it provides stock valuation and line-item counts by ship, enabling cross-platform inventory comparisons. A one-time data pull from this system provided the on-hand inventory value for the MF units. All non-surface platforms were removed from the data pull, to only include surface force platforms. As of January 2025, the result was 1,886,703-line items across 117 ships, with a total on-hand inventory value of $2.37 billion (Naval Supply Systems Command, n.d.). Ship by ship details are provided in Appendix A. This dataset served as the financial foundation for modeling inventory cost in the event of capitalization. Valuations were verified using NAVSUP's OTS to confirm current prices of items reflected of the shipboard inventories.

3. Fleet Training Management and Planning System

FLTMPS is a web-based platform used to track personnel training, qualifications, and readiness (Chief of Naval Operations, 2022). FLTMPS was used because it provided access to manning data for Logistics Specialists (LS) onboard active CGs. Having access to this information across both MF and NWCF cruiser platforms enabled the comparative assessment of whether additional personnel requirements would arise under a NWCF structure. The breakdown of all the ships that were utilized for this comparison can be found in Appendix C.

4. Policy Documents and Guidance

Key policy documents supported the modeling assumptions and established procedural authority for inventory, accounting, and manpower processes. These included the DoD Financial Management Regulation (FMR), Vol. 4, Chapters 1, 4, and 11 that outlined financial reporting principles, obligation recording, and inventory transfer processes; NAVSUP P-485 (Afloat Supply Procedures), provided details of standard shipboard logistics procedures; NAVSUP P-723 (Inventory Accuracy Procedures), provided the guidance on managing NWCF inventories; NAVSUP P-732 (RSUPPLY User Guide), provided guidance for the Navy's shipboard logistics system; and NAVSUPINST 5320.8, defined manpower requirements and management through Billet Identification Numbers (BINs), which ultimately assisted in the NAVSUP-Weapons System Support (WSS) manpower computation.

These instructions provided the regulatory, procedural, and operational foundations necessary to accurately model, assess, and identify the differences in inventory management; and the manpower requirements between MF and NWCF structures. Additionally, validation involved cross-referencing these documents with NAVSUP and TYCOM operational procedures to ensure alignment with current practices. Each document was thoroughly reviewed to confirm the relevance and accuracy of the data.

In order to validate our approach, we sought expert input and operational insight from the project sponsor to validate the use of instructions, understand system limitations, and confirm data interpretation. These engagements reinforced the credibility of the data and confirmed PRRV as a suitable surrogate metric. Additionally, the team visited Commander Naval Surface Force Atlantic (CNSL) N41 Readiness and N01F Comptroller Divisions to better understand manpower and cost constraints.

B. DATASET CONSTRUCTION AND COMPARATIVE ANALYSIS GROUPS

The data collected provided a comprehensive, normalized, and policy-aligned foundation for the accurate use and interpretation of metrics, costs, and procedures within a CEA framework. Although legacy data from the USS Normandy pilot (2008–2011) was

unavailable, the scope and quality of current data are sufficient to support both statistically and operationally meaningful comparisons between MF and NWCF inventory constructs, as well as the broader implications of capitalization.

To ensure the integrity and relevance of the comparative analysis, dataset construction followed strict inclusion criteria, platform equivalency, and operational alignment. The objective was to isolate the effect of funding mechanisms on logistics performance, minimizing potential distortions caused by mission-specific deviations, life cycle disparities, or incomplete reporting. Platforms were grouped by funding construct (NWCF or MF) and by ship class. Each dataset was normalized using OFRP categorizations to align data with comparable operational phases.

Ships undergoing ILO or major maintenance availabilities, as identified by their OFRP cycle, were excluded to prevent skewed results. This structured methodology ensured a fair and balanced comparison of logistics performance across two distinct funding paradigms. By grouping "like with like," the analysis assigned weighted relevance based on sample size, mission consistency, and statistical confidence.

C. METHODOLOGICAL FRAMEWORK AND JUSTIFICATION

This project began by evaluating a range of traditional program assessment models, including the well-established 10-step CEA framework proposed by Cellini et al. (2015). Other approaches considered included Cost-Benefit Analysis (CBA) and Multiple Criteria Decision Analysis (MCDA). However, these frameworks proved inadequate for this research, either due to limitations in the quantifiability of available data or because their methodologies lacked the flexibility and scope necessary for a comprehensive evaluation.

The most effective model identified was the MODM framework. This framework is a variation of a CEA and provides a structured analytical approach that evaluates alternatives by comparing their costs against multiple performance objectives (Wall & MacKenzie, 2015). Unlike models that rely on a single metric, MODM accounts for trade-offs among several criteria, such as efficiency, readiness, and funding, allowing decision-makers to assess the overall value of different strategies or systems.

Ultimately, the MODM model was selected for its ability to integrate both quantitative performance metrics and qualitative factors, enabling robust cross-platform, cross-functional comparisons. It supports the use of weighted criteria and decision rules that reflect stakeholder priorities, including logistics readiness, cost efficiency, systems compatibility, and administrative feasibility. Through MODM weighting, one can filter out datasets that are affected by limited sample size and reporting inconsistencies, which allows for useful data to be evaluated and applied based on its composition.

Furthermore, MODM enables the application of descending priority by providing flexibility to weigh the core metrics used in this study. This structured approach allowed for objective performance comparisons while incorporating field-informed judgments from TYCOM and NAVSUP experts.

MODM also supported the prioritization of metric importance. For example, funding availability (represented by the PRRV metric) can be weighed more heavily than pure inventory alignment (e.g., COSAL allowance effectiveness). This prioritization reflects operational realities; a technically accurate COSAL is useless if funding gaps prevent execution. Similarly, MODM enabled the down-weighting of datasets where a variance or limited sample size could affect reliability (e.g., the USS Normandy vs. CGs comparison).

In conclusion, while other CEA and decision-making models provided useful framing tools, only the MODM methodology allowed for the complexity, nuance, and flexibility needed to evaluate a potential enterprise-wide shift in inventory funding. It is the only model that could integrate fiscal, operational, and organizational variables at both the unit and fleet levels in a scalable and comparative manner. MODM's flexibility and ability to tailor it to mission-specific requirements made it the most appropriate choice for this research.

D. METRIC PRIORITIZATION AND WEIGHTING

The metrics PRRV, GE, NE, and AE were selected from CMP based on their availability across both funding constructs and their operational relevance. The MODM

model enabled these four key metrics to be carefully evaluated and weighted in assessing the effectiveness of NWCF versus MF inventory structures.

1. Weighting Criteria

The weighting of these metrics was determined through discussions with the supply network stakeholders and based on shipboard experience of the thesis members. The consensus prioritized indicators reflecting funding-related delays and readiness impact, particularly PRRV. AE, while important for provisioning policy, was considered less relevant to real-time operational support and thus assigned the lowest weight. The MODM scoring framework aggregated these weighted performance metrics and dataset priorities into a composite effectiveness index.

2. Key Metrics

These metrics were prioritized based on descending operational impact, with initial weights assigned within the MODM framework and reflect quantitative readiness performance.

1. Pending Requisition Release Value: PRRV provides a practical measure of funding responsiveness and resource sufficiency for both MF and NWCF inventories and carries the highest weight. While it does not fully replicate the DEF to RO metric used in Carroll and Cormier (2013), it serves as a suitable surrogate by capturing requisition backlogs for both stock replenishment and DTO demands. Despite some limitations, PRRV offers valuable insight into funding delays and supply chain bottlenecks, particularly under the mission-funded model.
2. Gross Effectiveness: Measures the percentage of total requisitions filled from storeroom stock, regardless of allowance status. GE carries the second highest weight as it indicates the overall responsiveness of the ship's supply system and storeroom depth. High GE rates are associated with stronger logistics execution and reduced reliance on external sourcing.

3. Net Effectiveness: NE measures fulfillment rates for COSAL-authorized items, offering a narrower view than GE by focusing on pre-defined allowance lists. High NE scores reflect better alignment between provisioning strategies and actual materiel demand. This metric has been emphasized in previous NWCF studies and remains vital for evaluating a ship's operational readiness; however, in our assessment we are assigning it a lower weight than GE.

4. COSAL Allowance Effectiveness: This metric represents the proportion of COSAL-authorized items onboard relative to total demand. It helps assess the alignment between technical requirements and onboard inventory. While valuable for diagnosing provisioning adequacy from NAVSUP and TYCOM, it was given the lowest weight due to its indirect relationship to daily materiel readiness impacts from funding constraints.

Overall, the MODM scoring framework enabled the aggregation of these weighted performance metrics and dataset priorities into a composite effectiveness index. This index will be used to rank each platform's logistic readiness under their respective funding structures. It formed the empirical basis for the conclusions regarding the viability and value of transitioning to NWCF.

E. FINANCIAL EVALUATION AND CAPITALIZATION COSTS

This section evaluates the financial implications and capitalization costs associated with transitioning shipboard inventory to the NWCF.

1. Inventory Cost

Capitalizing shipboard MF inventory into the NWCF requires a structured transition. This process is governed by DoD Financial Management Regulation (FMR), Volume 4, Chapter 4, which outlines the necessary steps and documentation to recognize previously procured assets as capital within the Navy's Working Capital accounting structure (2023). At the core of this process is the non-reimbursable transfer of inventory

from TYCOM control to NAVSUP ownership. This is accomplished via DD Form 1150, which is the transfer documentation for the title and accountability of inventory assets.

Under this model, the component activity that owns the inventory, the TYCOMs, transfers the inventory to NAVSUP. NAVSUP is not required to repurchase this materiel; instead, it assumes financial and logistical responsibility under working capital fund rules. Once the transfer is complete, TYCOM removes the inventory from its accounting records, and NAVSUP incorporates it into the NWCF accountability. This process eliminates the need for duplicate funding and enables centralized oversight of inventory valuation. Following the transfer, future requisitions must generally be reimbursed using OPTAR funds. However, per FMR Volume 4, Chapter 4, the TYCOMs may submit a request through USD(C) to temporarily issue materiel without immediate payment, up to an annual limit based on historical usage. Once this limit is reached, or at the end of the fiscal year, NWCF must resume charging for issued materiel on a reimbursable basis (Department of Defense, 2023).

To accurately estimate the inventory cost and scope of this transition, the inventory valuation data was extracted from the FIMARS in January 2025. The data extracted listed all platforms that fall under the surface forces, whether unit or force. Therefore, further analysis was conducted to identify all the unit-level ships that would be impacted by the transition. The total number identified and that was used to estimate the inventory value and manning values (in manpower analysis) is that of 117 unit-level ships. The inventory breakdown for the 117 ships (see Appendix A) resulted in:

- 1,886,703 total line items on hand as of January 2025
- With a total on-hand valuation of $2,366,407,976

This value represents a mix of initial spares, depot-level reparable (DLRs), consumables, and demand-based stock. Importantly, this inventory is already in possession and use, meaning that transitioning to NWCF does not require additional procurement, only administrative capitalization.

2. Manpower Cost

In addition to the inventory cost of capitalization, the manpower cost was also considered for the ship, TYCOM, and NAVSUP WSS. An essential aspect of this study involved evaluating how the transition from MF to NWCF would influence manpower requirements and organizational responsibilities across the three echelons: shipboard personnel, TYCOM-level readiness and logistics managers, and NAVSUP enterprise-level supply operations.

a. Shipboard Manning

A detailed comparison of shipboard manning levels between NWCF and MF platforms was conducted using the BBD records in FLTMPS (see Appendix C). Analyzed the authorized and onboard LS billets for the USS Normandy (NWCF ship) and three comparable MF CGs (USS Gettysburg, USS Princeton, and USS Lake Erie). The initial hypothesis was that NWCF funding would require more logistics billets onboard, given its expected increase in reporting and fiscal control requirements. However, the analysis found parity across all platforms. Normandy was authorized 13 LS billets, which was consistent with USS Gettysburg (13 billets) and USS Princeton and USS Lake Erie (11-13 billets).

This suggested that NWCF implementation does not inherently require additional shipboard logistics personnel, nor does it alter the core duties of Logistics Specialists onboard MF ships. Their responsibilities, inventory management, financial recordkeeping, materiel procurement, and issue tracking remain consistent under both funding constructs. This finding is significant because it underscores that a transition to NWCF can be executed without incurring additional billet requirements or disrupting existing manning plans at the ship level.

b. TYCOM Manning

The TYCOM Readiness Divisions play a critical oversight role in inventory reporting, audit compliance, and financial reconciliation. To assess whether NWCF imposes new burdens on TYCOM personnel, a site visit to CNSL and phone conversations with CNSP took place in addition to a review of standard operating procedures for both

MF and NWCF ships was also conducted. The findings from both show that the inventory management frameworks in place for MF ships are already similarly structured to comply with NAVSUP P-723 guidance used by NWCF ships, regardless of funding type.

Specifically, TYCOMs oversee:

- Annual inventory schedules and reconciliation audits
- Quarterly NAVSUP Form 455/1 (Inventory Accuracy Reporting)
- Quarterly NAVSUP Form 455/2 (Controlled/Classified Inventory Reporting)

These reporting requirements exist under both MF and NWCF constructs. Interviews with TYCOM staff confirmed that the process of reviewing reports and supporting shipboard logistics personnel is functionally similar. Thus, not anticipating changes to inventory management responsibilities, workload, or staffing if additional ships transition to NWCF.

c. NAVSUP-WSS Manning

The greatest projected impact of NWCF expansion lies within NAVSUP-WSS, particularly the Inventory Accuracy team (N85) responsible for reconciling enterprise resource planning records and ensuring ledger integrity. As ships transition to NWCF, their inventory must be formally capitalized, transferred from unit-level end-use to NAVSUP-owned stock via DD Form 1150.

With 117 SURFOR ships under consideration for transition, NAVSUP is expected to gain responsibility for approximately 1.89 million additional line-items (see Appendix B). This represents a substantial increase in warehouse, financial, and ERP oversight functions. As detailed in Appendix B, the workload associated with managing this volume includes:

- Reconciling Unreconciled Balances (URBs)
- Performing Baseline Inventory Adjustments (BLAs)
- Reviewing and validating Intermediate Documents (IDOCs)

- Managing data integrations with RSUPPLY and Navy ERP
- Monitoring for and resolving invalid inventory requests

To support this increase, NAVSUP N85 anticipates a rise in Full-Time Equivalent (FTE) requirements, as delineated by NAVSUPINST 5320.8. The analysis identified a need for the following personnel:

- One GS-13 FTE for program oversight and systems analysis
- Five GS-11 FTEs to serve as analysts and technicians for ERP reconciliation and audit support

Based on the current General Schedule (GS) pay scale, the estimated annual base salary is $63,163 for each GS-11 and $90,025 for a GS-13, resulting in a combined total annual cost of $405,840 for the six positions (FederalPay.org, 2025). This figure reflects base salary only and does not include fringe benefits, training costs, or temporary surge-related expenses associated with implementation. Fringe benefits were excluded from this estimate to maintain consistency with standard baseline costing practices and due to variability across regions and individual employment scenarios. Nonetheless, this estimate provides a foundation for budgeting future personnel requirements.

This analysis confirms that NAVSUP is the only organizational echelon where staffing increases are essential to enable a full-scale transition to the NWCF model.

3. System Requirements and Transition Feasibility

The Navy's existing inventory systems onboard ships already support the infrastructure required for a transition to NWCF when it comes to inventory management and funding. A primary system used by MF and NWCF platforms is the RSUPPLY application, operated on all surface ships. RSUPPLY, per the NAVSUP P-732 (RSUPPLY Unit User's Guide), comprises five subsystems: site, inventory, logistics, financial, and query. These subsystems allow for the full range of inventory management operations from requisition generation to financial reconciliation. Importantly, the architecture and operational use of RSUPPLY is consistent between MF and NWCF ships, except for the FINANCIAL module, tailored to the funding source.

Email correspondence received from NIWC confirmed that the detailed RSUPPLY process for the NWCF transition would require two specific system-level changes:

- Unit Supply Identifier (USID) Update. NAVSUP will need to change the USID from an end-use designation to a NWCF designation. This identifier is used throughout RSUPPLY and Navy ERP to route and process requisitions, manage funding codes, and track ownership status.
- Logistics Item Control Number (LICN) to Routing Identifier (RI) Conversion. As the inventory is centrally owned by NAVSUP, they must map the LICN to a valid NWCF-compatible RI, thus enabling the system to recognize and manage inventory efficiently.

The Naval Tactical Command Support System (NTCSS) RSUPPLY team at NIWC confirmed that these modifications are achievable without technical representative assistance or system reinstallation. "Ships already have the underlying RSUPPLY software necessary to manage NWCF deep stock inventory" said Allison William from NIWC code 54440. A baseline configuration exists on all ships for such a conversion, and the required changes are administrative, not technical.

Additionally, NAVSUP maintains a central financial and inventory management presence in Navy ERP (see Appendix B). NAVSUP will use ERP once inventory is capitalized in order to manage item-level records, track reconciliation cycles, and generate required financial reports. NAVSUP P-723 outlines procedural steps and oversight expectations, including monthly validation, discrepancy resolution, and audit trail maintenance for all NWCF inventory.

Supporting systems such as Shipboard Configuration and Logistics Program (ShipCLIP), Intermediate Document (IDOC) protocols, and Unreconciled Balance (URB) reports should be integrated into the transition process (see Appendix B) to ensure full visibility and proper synchronization of inventory transactions. NAVSUP N85 has identified these as core requirements for the ongoing reconciliation and accountability functions associated with NWCF-managed items.

In conclusion, the systems infrastructure required to support the NWCF transition is already embedded in the Navy's logistics enterprise. An administrative change directed via NAVSUP does not require major capital investment. When capitalization takes place, this system-level feasibility is expected to support the practicality of expanding NWCF inventory funding to additional unit-level platforms.

F. ASSUMPTIONS AND LIMITATIONS

This research was performed under several key assumptions necessary to ensure the feasibility and focus of the analysis. These assumptions were validated through consultations with SMEs and policy review. Nonetheless, certain limitations in data availability, system access, and fleet composition influenced the scope and methodology. These are detailed below to ensure transparency and contextual understanding of the findings.

1. Key Assumptions:

The following key assumptions were made to ensure the feasibility and focus of this analysis:

PRRV serves as a reliable proxy for the deficiency to requisition objective (DEF to RO) metric. Due to current CMP system limitations and contractual transition to Nexagen Networks (as of February 2025), DEF to RO could not be replicated for (MF platforms). PRRV was the best available alternative based on its operational relevance and consistent reporting across all platforms.

Ships in different life cycle phases (e.g., maintenance, basic, advanced, and sustainment) display different logistics readiness profiles. An assumption is made that this approach will account for readiness-related variations in performance by normalizing metrics according to each ship's OFRP phase.

The 117 SURFOR ships included in the FIMARS analysis were assumed to be representative of the broader surface fleet inventory characteristics. Excluded units "surface units" that were not identified as a ship platform.

It was assumed that the systems currently used by the Navy (RSUPPLY and ERP) have the baseline capability to support the NWCF transition with only minor administrative modifications and that no major technical upgrades are necessary for implementation.

Shipboard and TYCOM logistics staffing models are assumed to remain unchanged post-transition, with increases required only at NAVSUP for inventory reconciliation and ERP maintenance.

It is assumed that TYCOM will transfer inventory ownership to NAVSUP without the need for "re-purchase," since the established FMR procedure for similar inventory capitalization scenarios, does not require the gaining activity to provide funds for the purchase.

Sensitivity analysis was conducted by weighting different priorities higher or lower based on perceived decision maker preferences. A higher weighting was placed on funding availability and lower weighting was placed on performance metrics. Similarly, a second sensitivity analysis was performed where higher weighting was placed on performance metrics and lower weighting on funding availability.

2. Limitations:

The approach prioritized real-world operational constraints and data availability. Due to limited legacy pilot data, specifically from the USS Normandy's 2008–2011 transition, and constraints in replicating earlier methodologies such as DEF to RO. This study focused on currently available performance metrics collected over 30 months using the Navy's CMP, FIMARS, and related authoritative systems and logistics policies. Despite the robustness of the data and methodology explained in this chapter, the following limitations must be acknowledged:

The original pilot project for USS Normandy's transition provided valuable proof-of-concept insights. However, that pilot's data, point papers, and project documentation are no longer available, and key personnel have rotated. This required us to rely solely on current CMP and ERP data.

While DEF to RO was used in earlier NWCF studies, this data could not be accessed or replicated within CMP due to system structure limitations and policy constraints. Creating comparable values required manual data pulls from approximately 60 individual ships, which was not operationally feasible.

With many guided-missile cruisers decommissioned or undergoing Service Life Extension Programs (SLEPs), the available sample for comparing MF-funded CGs to NWCF-funded USS Normandy was limited. A re-working or longer timescale analysis of previous research on CGs, such as in Carol and Cormier, was deemed not feasible.

Ships undergoing ILOs or in extended maintenance periods often report artificially low logistics performance. While these data points were excluded from the analysis, they underscore the sensitivity of metrics to the life cycle stage and the importance of OFRP-based normalization.

While GE, NE, AE, and PRRV provide a comprehensive snapshot of supply performance, they do not capture broader impacts such as procurement lead times, vendor reliability, or non-materiel readiness (e.g., training impacts). These factors, while relevant, were outside the scope of this study. Additionally, CMP system only allows for the access of 24 months of data to be accessed at any given time.

There may be unknown lags or inaccuracies in RSUPPLY or ERP data reporting due to delayed entries, training gaps, or configuration errors. These are assumed to be randomly distributed across platforms, though they could introduce minor anomalies.

In sum, while this study offered a thorough and representative analysis of NWCF feasibility, it is constrained by certain unavoidable data and access limitations. These were mitigated wherever possible through expert interviews, OFRP normalization, and cross-system validation. Acknowledging these constraints ensures that the findings are interpreted within the proper analytical context.

G. CONCLUSION

This chapter established the framework for evaluating the transition of Navy unit-level ship inventory funding from MF to the NWCF model. A MODM approach was

selected for its ability to balance both quantitative metrics and qualitative considerations, offering a more flexible and mission-relevant alternative to traditional models like Cost-Benefit Analysis or Cellini's 10-step CEA. Core performance metrics: GE, NE, AE, and PRRV were selected based on operational relevance, data availability, and stakeholder validation.

Dataset construction followed strict criteria for platform comparability and readiness phase alignment, with a robust validation process applied across all data sources to ensure consistency and reliability. With the methodology in place, the next chapter will present the results of this analysis; examining and presenting real-world data from CMP, FIMARS, and FLTMPS to assess how NWCF-funded platforms compare to their mission-funded counterparts in logistics performance, financial efficiency, and operational readiness.

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IV. ANALYSIS AND EVALUATION OF FUNDING MODELS

This analysis sought to determine the overall MOE for MF and NWCF by identifying key objectives and evaluating their relative importance. Effectiveness is defined as the extent to which an alternative enables the pursuit of objectives while considering the relative importance of each factor analyzed (Mackenzie, 2015). Using a top-down approach, it compared MF-funded ships (CGs, LPDs, DDGs) with NWCF-funded ships (USS Normandy, LHDs, LHAs) to derive MOE values for each model.

A. OBJECTIVE HIERARCHY AND EVALUATION CRITERIA

The objectives for the MOE analysis are defined as gross effectiveness, net effectiveness, COSAL allowance effectiveness, and pending requisition release value. The weighting of these factors assigns equal importance to performance metrics and funding availability to ensure a balanced assessment. Sensitivity analysis is conducted later in this chapter to account for potential variations in decision-maker priorities, allowing for scenarios where greater emphasis may be placed on either performance or funding availability. Additionally, qualitative factors that are difficult to quantify but considered operationally significant are included to inform decision-making. Finally, the estimated cost of implementation is also presented to provide decision makers with a comprehensive understanding of the effectiveness gained relative to the resources required. Figure 3 shows the hierarchical structure used for developing the value function. At the topmost level, the single overarching objective is to determine maximum effectiveness.

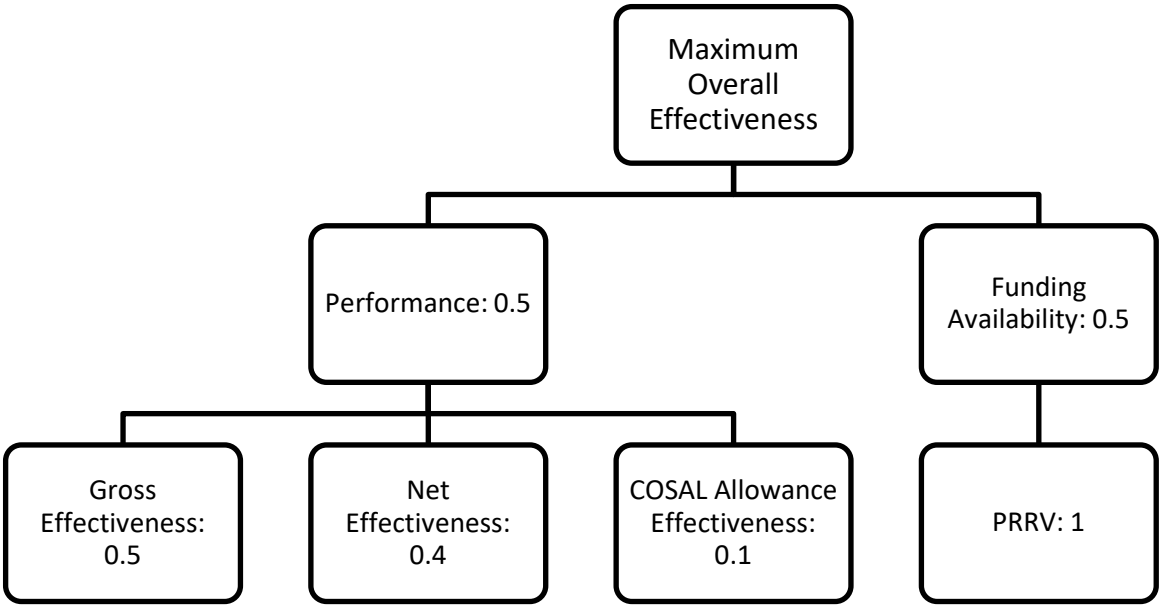


Figure 3. Maximum Overall Effectiveness Values

B. METRICS PERFORMANCE

Performance scores for each funding model were calculated using three weighted metrics: gross effectiveness, net effectiveness, and COSAL allowance effectiveness. These measures reflect inventory accuracy, requisition responsiveness, and allowance sufficiency across operational phases. The results from the performance component of the overall MOE for each funding method.

1. OFRP Phase Consideration

Carroll and Cormier (2013) highlighted that supply effectiveness varies across the OFRP life cycle, with deployment and sustainment phases typically yielding higher performance than maintenance or basic training phases. To ensure meaningful comparison, effectiveness metrics in this study were organized by OFRP phase and funding model rather than by calendar month. Figure 4 presents average performance data across three key metrics: net effectiveness, gross effectiveness, and COSAL allowance effectiveness, for both NWCF and MF-funded ships. The chart shows that NWCF platforms (blue bar) generally outperform MF (orange bar) counterparts in gross and allowance effectiveness

across most phases. However, MF ships demonstrate a slight advantage in net effectiveness, particularly during the basic and maintenance phases.

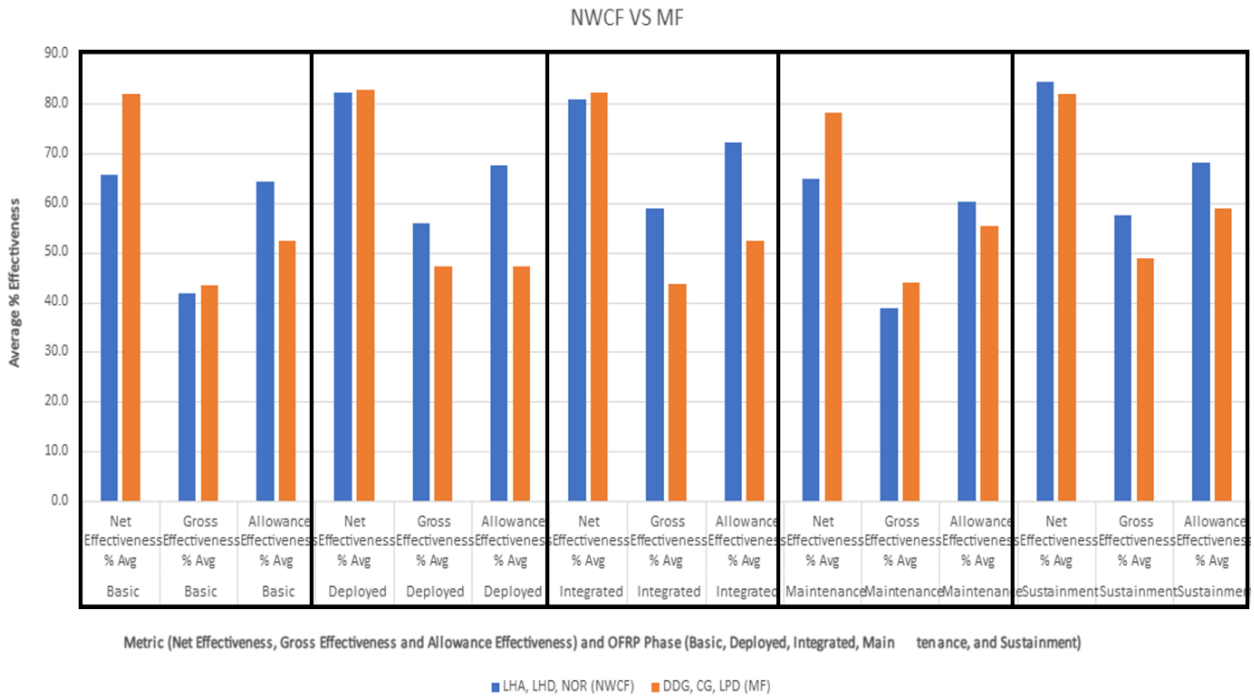


Figure 4. Metrics Effectiveness across OFRP

2. Performance

To calculate the performance score for NWCF and MF platforms, each effectiveness metric was weighted based on its assigned importance. Table 1 represents the value based on the calculations and provides the total sum of each performance metric that will be included in the final calculation of MOE.

When the performance metrics are summed up as displayed in Table 1, we have the total performance score for the NWCF at a value of .6220 and MF at a value of .6063. In an ideal world, a ship that is 100% effective in its performance metrics would receive a value of 1 as its final score. In this scenario the NWCF would be 62.2% effective and MF being 60.63% effective. The NWCF ships being 1.57% more effective in performance ranking compared to the MF ships.

Table 1. NWCF and MF Weighted Values

Navy Working Capital Fund	Average Across OFRP	Weight	Weighted Value
Gross Effectiveness	0.5058	0.50	0.2529
Net Effectiveness	0.7562	0.40	0.3025
COSAL AE	0.6656	0.10	0.0666
Total Performance Score			0.6220
Mission Funded	Average Across OFRP	Weight	Weighted Value
Gross Effectiveness	0.454	0.50	0.227
Net Effectiveness	0.815	0.40	0.326
COSAL AE	0.533	0.10	0.0533
Total Performance Score			0.6063

To assess funding availability, this analysis employed PRRV, a metric that captures the total value of materiel requisitioned by ship's force, either for stock replenishment or for Direct Turnover (DTO) to its customers, but not yet released or purchased by the supply department. While not a perfect proxy, PRRV is a useful indicator of how well operational requirements are supported by available funds. However, it is important to note that fluctuations in PRRV may also reflect non-funding-related factors such as prioritization decisions, administrative delays, or changing operational demands. This study leveraged firsthand experience as surface fleet supply officers to affirm that PRRV serves as a practical and intuitive indicator of funding sufficiency at the unit level.

An illustrative analogy compares PRRV to the concept of a digital shopping cart. When household items are added to a cart, they represent validated needs, just as shipboard requisitions reflect verified materiel requirements. The act of "checking out" parallels the role of supply department logisticians who release or procure the requisitioned items. Under conditions of adequate funding, the entire cart can be purchased, ensuring full operational support. Conversely, funding constraints can delay or prevent purchases, leaving critical requirements unmet.

Figure 5 presents PRRV data for four NWCF ships that were randomly selected, the USS Essex, Normandy, Bataan, and Kearsarge, and highlights a consistent trend: requisitions pending release under OPTAR (MF) funding (circled in orange below) are

generally higher in both value and count than those under NWCF (circled in blue below). BP-28 is a unique budget project code that pertains specifically to Defense Logistics Agency-furnished consumables for NWCF ships.

ESSEX: 2025-04-28

Pending Requisition Release Value	
Pending Requisition Release Value (OPTAR)	498,474.97
Pending Requisition Release Count (OPTAR)	164
Pending Requisition Release Value (repair parts) (OPTAR)	371,364.58
Pending Requisition Release Count (repair parts) (OPTAR)	66
Pending Requisition Release Value (consumables) (OPTAR)	127,110.39
Pending Requisition Release Count (consumables) (OPTAR)	98
Pending Requisition Release Value (BP-28)	0.00
Pending Requisition Release Count (BP-28)	0
Pending Requisition Release Value (repair parts) (BP-28)	0.00
Pending Requisition Release Count (repair parts) (BP-28)	0
Pending Requisition Release Value (consumables) (BP-28)	0.00
Pending Requisition Release Count (consumables) (BP-28)	0

NORMANDY: 2025-04-14

Pending Requisition Release Value	
Pending Requisition Release Value (OPTAR)	152,995.63
Pending Requisition Release Count (OPTAR)	52
Pending Requisition Release Value (repair parts) (OPTAR)	64,515.40
Pending Requisition Release Count (repair parts) (OPTAR)	13
Pending Requisition Release Value (consumables) (OPTAR)	88,480.23
Pending Requisition Release Count (consumables) (OPTAR)	39
Pending Requisition Release Value (BP-28)	0.00
Pending Requisition Release Count (BP-28)	0
Pending Requisition Release Value (repair parts) (BP-28)	0.00
Pending Requisition Release Count (repair parts) (BP-28)	0
Pending Requisition Release Value (consumables) (BP-28)	0.00
Pending Requisition Release Count (consumables) (BP-28)	0

ЗATAAN: 2025-04-25

Pending Requisition Release Value	
Pending Requisition Release Value (OPTAR)	94,912.81
Pending Requisition Release Count (OPTAR)	41
Pending Requisition Release Value (repair parts) (OPTAR)	0.00
Pending Requisition Release Count (repair parts) (OPTAR)	0
Pending Requisition Release Value (consumables) (OPTAR)	94,912.81
Pending Requisition Release Count (consumables) (OPTAR)	41
Pending Requisition Release Value (BP-28)	0.00
Pending Requisition Release Count (BP-28)	0
Pending Requisition Release Value (repair parts) (BP-28)	0.00
Pending Requisition Release Count (repair parts) (BP-28)	0
Pending Requisition Release Value (consumables) (BP-28)	0.00
Pending Requisition Release Count (consumables) (BP-28)	0

KEARSARGE: 2025-04-24

Pending Requisition Release Value	
Pending Requisition Release Value (OPTAR)	973,497.41
Pending Requisition Release Count (OPTAR)	401
Pending Requisition Release Value (repair parts) (OPTAR)	568,911.12
Pending Requisition Release Count (repair parts) (OPTAR)	166
Pending Requisition Release Value (consumables) (OPTAR)	404,586.29
Pending Requisition Release Count (consumables) (OPTAR)	235
Pending Requisition Release Value (BP-28)	510.35
Pending Requisition Release Count (BP-28)	2
Pending Requisition Release Value (repair parts) (BP-28)	0.00
Pending Requisition Release Count (repair parts) (BP-28)	0
Pending Requisition Release Value (consumables) (BP-28)	510.35
Pending Requisition Release Count (consumables) (BP-28)	2

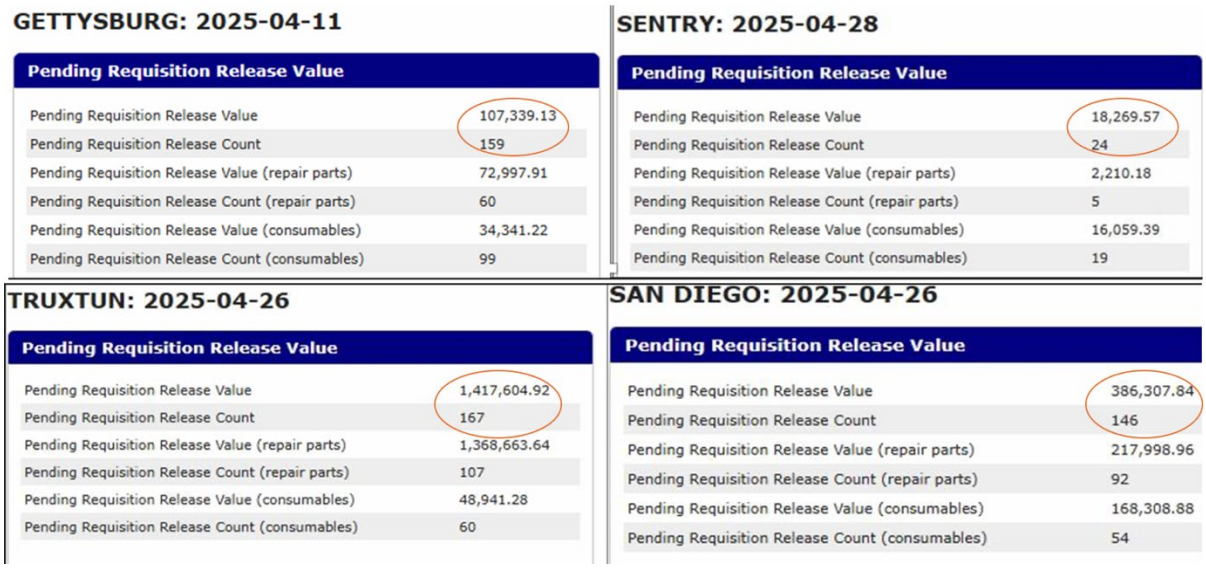
Figure 5. Force-Level Ships Pending Requisition Release Snapshot

As of the dates shown, USS Essex reported no BP-28 (NWCF) requisitions pending, while its OPTAR backlog totaled $498,474.97 across 164 orders. USS Kearsarge showed a similarly low BP-28 value of $510.35 for just two requisitions, compared to $973,497.41 across 401 pending OPTAR orders. Both USS Bataan and USS Normandy reported zero BP-28 requisitions, with respective OPTAR PRRVs of $94,912.81 and $152,995.63. This trend suggests that NWCF requisitions may be released more promptly, whereas OPTAR-funded (MF) requisitions experience greater backlog, indicating a

potential advantage of NWCF in funding responsiveness and inventory processing efficiency.

The reason behind the consistent delay in releasing MF requisitions cannot be definitively determined without direct insight into each ship's financial operations. However, Figure 5 provides a financial snapshot of ships that possess both funding mechanisms, where NWCF is used to replenish inventory, and OPTAR funds are required to purchase items from that inventory or to requisition part off ship, when the item is not onboard. This suggests that while units may have adequate NWCF funds to stock inventory, they may lack sufficient OPTAR resources to complete the purchase, resulting in higher pending requisition values.

Additionally, Figure 6 displays PRRV data retrieved from CMP for four MF ships that were randomly selected, the USS Gettysburg, Sentry, Truxtun, and San Diego, all of which operate solely under MF and do not manage BP-28 (NWCF) inventory.



GETTYSBURG: 2025-04-11

Pending Requisition Release Value	
Pending Requisition Release Value	107,339.13
Pending Requisition Release Count	159
Pending Requisition Release Value (repair parts)	72,997.91
Pending Requisition Release Count (repair parts)	60
Pending Requisition Release Value (consumables)	34,341.22
Pending Requisition Release Count (consumables)	99

SENTRY: 2025-04-28

Pending Requisition Release Value	
Pending Requisition Release Value	18,269.57
Pending Requisition Release Count	24
Pending Requisition Release Value (repair parts)	2,210.18
Pending Requisition Release Count (repair parts)	5
Pending Requisition Release Value (consumables)	16,059.39
Pending Requisition Release Count (consumables)	19

TRUXTUN: 2025-04-26

Pending Requisition Release Value	
Pending Requisition Release Value	1,417,604.92
Pending Requisition Release Count	167
Pending Requisition Release Value (repair parts)	1,368,663.64
Pending Requisition Release Count (repair parts)	107
Pending Requisition Release Value (consumables)	48,941.28
Pending Requisition Release Count (consumables)	60

SAN DIEGO: 2025-04-26

Pending Requisition Release Value	
Pending Requisition Release Value	386,307.84
Pending Requisition Release Count	146
Pending Requisition Release Value (repair parts)	217,998.96
Pending Requisition Release Count (repair parts)	92
Pending Requisition Release Value (consumables)	168,308.88
Pending Requisition Release Count (consumables)	54

Figure 6. Unit Level Ships Requisition Release Value Snapshot

Looking only at MF ships does not provide a comparison to NWCF ships, but does illustrate the extent of OPTAR-constrained requisition backlog. As of the reported dates, USS Gettysburg recorded 159 unreleased requisitions totaling $107,339.13, USS Sentry

reported 24 requisitions valued at $18,269.57, USS Truxtun reported 167 requisitions totaling $1,417,604.92, and USS San Diego recorded 146 pending requisitions worth $386,307.84. These values reflect a combination of unreleased storeroom replenishment and DTO requisitions, both of which are critical for maintaining operational supply readiness.

As previously noted, MF ships must rely on OPTAR to fund both inventory replenishment and DTO support, making these backlogs particularly concerning. While the specific reasons for the delays are unknown, potentially involving prioritization, funding shortfalls, or administrative lags, the data suggests a recurring trend. When compared with the NWCF requisitions in Figure 5, MF requirements consistently demonstrate higher pending requisition release values and counts. This may indicate that despite validated supply requirements, mission-funded ships often lack the timely funding or administrative capacity to release requisitions, creating vulnerabilities in materiel readiness and operational support. NWCF ships do not have the same constraints in this regard and have a consistently lower PRRV as a result.

PRRV captures the full spectrum of requisitioned needs, including both storeroom replenishment and DTO demands, making it a comprehensive and operationally meaningful indicator of supply support performance. To assess funding responsiveness over time, PRRV was tracked monthly across a 30-month period. As shown in Figure 7, NWCF-funded platforms (blue line) consistently maintained lower PRRV values than MF-funded platforms (orange line), suggesting a more reliable and timely funding support under the NWCF model.

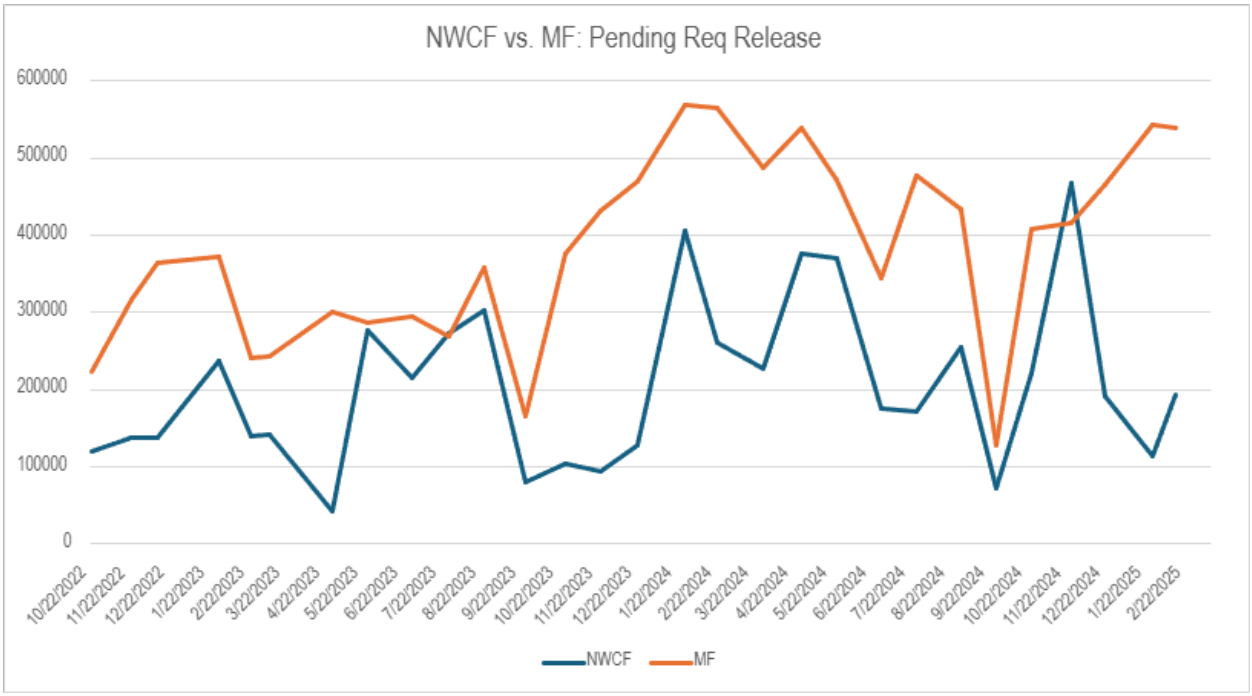


Figure 7. PRRV Performance

To integrate PRRV into the MODM framework and enable direct comparison with performance metrics, normalization was applied. This process converts raw values into a unitless scale, allowing for consistent interpretation across different metrics (Han et al., 2011). Specifically, monthly average PRRV values were normalized using the observed maximum and minimum values across the dataset. The following equation was used to standardize PRRV values for inclusion in the MODM analysis.

a. Normalized Value (NV) Formula:

$$NV = \frac{\text{Maximum Value} - \text{Average Value}}{\text{Maximum Value} - \text{Minimum Value}}$$

NWCF Funding Availability Normalization:

$$NV_{NWCF} = \frac{568{,}888.54 - 208{,}366.83}{360{,}521.71} = 0.6853$$

$$568{,}888.54 - 42{,}844.69 \qquad 526{,}043.85$$

MF Funding Availability Normalization:

$$NV_{MF} = \frac{568{,}888.54 - 386{,}704.19}{568{,}888.54 - 42{,}844.69} = \frac{182{,}184.35}{526{,}043.85} = 0.3463$$

To obtain the overall MOE for each funding method, the performance score and normalized PRRV are each weighted equally at 50%:

b. MOE Calculation:

$$\begin{aligned} NWCF\ MOE &= (0.2529 + 0.3025 + 0.0666) \times 0.5 + 0.6853 \times 0.5 NWCF\ MOE \\ &= (0.2529 + 0.3025 + 0.0666) \times 0.5 + 0.6853 \times 0.5 NWCF\ MOE \\ &= 0.311\ (Performance) + 0.3427\ (Funding\ Availability) \\ &= 0.6537 NWCF\ MOE \\ &= 0.311(Performance) + 0.3427(Funding\ Availability) = 0.6537 \end{aligned}$$

$$\begin{aligned} MF\ MOE &= (0.227 + 0.326 + 0.0533) \times 0.5 + 0.3463 \times 0.5 MF\ MOE \\ &= (0.227 + 0.326 + 0.0533) \times 0.5 + 0.3463 \times 0.5 MF\ MOE \\ &= 0.3032\ (Performance) + 0.1732\ (Funding\ Availability) \\ &= 0.4764 MF\ MOE \\ &= 0.3032(Performance) + 0.1732(Funding\ Availability) = 0.4764 \end{aligned}$$

Based on the calculations, the NWCF produced an MOE that is 0.1773 points higher than the MF when performance and funding availability are weighted equally. In a perfectly funded scenario, a ship would have no pending requisitions, every supply request would be fulfilled immediately, resulting in a PRRV of zero. Because the normalization formula used in this study favors lower PRRV values (i.e., a lower backlog indicates better funding responsiveness), a PRRV of zero yielded a normalized score of 1.0. Accordingly, the higher normalized PRRV score observed for NWCF-funded ships reflected greater funding availability and more responsive inventory management. On average, NWCF platforms demonstrated a 17.73% improvement in normalized PRRV values compared to

their MF counterparts (see Table 2), highlighting NWCF's superior performance in meeting operational supply demands.

C. SENSITIVITY ANALYSIS

This section evaluates how the overall MOE shifts when the relative weighting of performance and funding availability is altered to reflect varying priorities among decision makers. Using the established MODM framework, two alternative weighting scenarios are analyzed to simulate different strategic emphases: one prioritizing performance, and the other emphasizing funding availability.

1. Scenario A: Emphasis on Performance

In this scenario, and as reflected in Figure 8, decision makers place greater emphasis on operational performance, particularly valuing NE and AE over GE and funding availability.

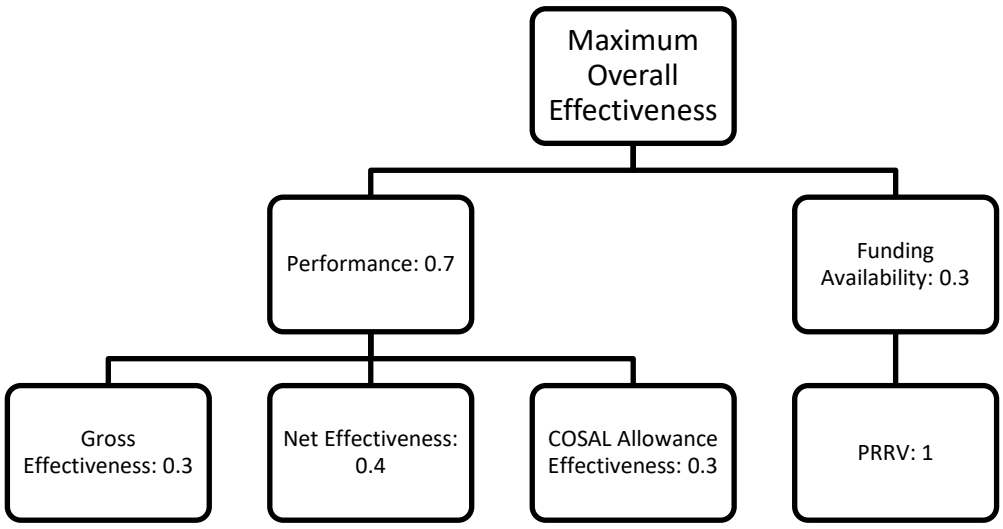


Figure 8. Maximum Overall Effectiveness with Higher Performance Weight

The modified MOE calculations reflect the updated weighting, where performance is weighed at 70%, while funding availability is weighed at 30% is provided below:

NWCF MOE (Performance-Weighted):

$$MOE = \big((0.5058 \times 0.3) + (0.7562 \times 0.4) + (0.6656 \times 0.3)\big) \times 0.7\big((0.5058 \times 0.3) + (0.7562 \times 0.4) + (0.6656 \times 0.3)\big) \times 0.7 + (0.6853 \times 0.3)$$

$$MOE = (0.6539 \times 0.7) + (0.6853 \times 0.3) = 0.6633$$

MF MOE (Performance-Weighted):

$$MOE = \big((0.454 \times 0.3) + (0.815 \times 0.4) + (0.533 \times 0.3)\big) \times 0.7\big((0.454 \times 0.3) + (0.815 \times 0.4) + (0.533 \times 0.3)\big) \times 0.7 + (0.3463 \times 0.3)$$

$$MOE = (0.6341 \times 0.7) + (0.3463 \times 0.3) = 0.5394$$

Under a performance dominant weighting, NWCF outperformed MF by 0.1239, representing a relative improvement in overall effectiveness when operational performance is prioritized.

2. Scenario B: Emphasis on Funding Availability

In this scenario, and as reflected in Figure 9, funding availability is prioritized over performance.

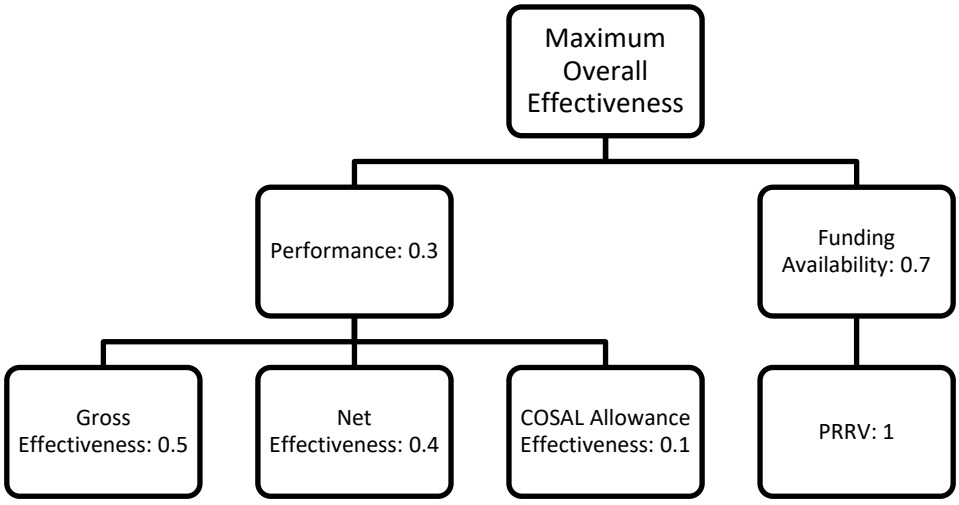


Figure 9. Maximum Overall Effectiveness with Higher Funding Availability Weight

The modified MOE calculations reflect a weighting of 70% for funding availability and 30% for performance metrics as reflected in Figure 9. The calculations below place focus on financial responsiveness and operational readiness through adequate resourcing.

NWCF MOE (Funding Availability-Weighted):

$$MOE = [(0.2529 + 0.3025 + 0.0666) \times 0.3] + (0.6853 \times 0.7)$$

$$MOE = (0.622 \times 0.3) + (0.6853 \times 0.7) = 0.6663$$

MF MOE (Funding Availability-Weighted):

$$MOE = [(0.227 + 0.326 + 0.0533) \times 0.3] + (0.3463 \times 0.7)$$

$$MOE = (0.6063 \times 0.3) + (0.3463 \times 0.7) = 0.4243$$

When funding availability is weighted more heavily in the MOE calculation, NWCF demonstrated a 0.242-point advantage over MF, reflecting a 24.2% relative improvement in funding responsiveness and overall supply support effectiveness (see Table 2).

Across all weighting scenarios evaluated, the NWCF model demonstrated higher overall effectiveness scores compared to MF. This trend remained consistent regardless of whether the analysis emphasized operational performance, funding responsiveness, or a balanced approach. These results suggest that the NWCF model may offer broader utility across diverse decision-making priorities without presupposing superiority.

Table 2 Summarizes the MOE values under each weighting scenario:

Table 2. MOE Summary

Weighting Scenario	NWCF MOE	MF MOE	Difference
Even (50/50)	.6537	.4764	+.1773
Higher Performance	.6633	.5394	+.1239
Higher Funding Availability	.6663	.4243	+.2420

D. COST OF IMPLEMENTATION

Implementation costs were assessed across three categories consistent with the MODM framework: inventory capitalization, manpower, and system configuration. A summary of findings is provided in Table 3.

1. Inventory Capitalization Cost

Table 3 displays the estimated implementation costs associated with transitioning 117 unit-level surface ships to the NWCF. Overall, the analysis found that most transition-related costs are relatively minimal, with the exception of recurring manpower requirements at NAVSUP.

Table 3. Summary of Cost of Implementation

Cost Category	Data Source	Estimated Annual Cost	Notes
Inventory	FIMARs (see Appendix A)	$0	Administrative transfer, based on FMR process and the assumption that TYCOM will not require purchase.
Manpower	FLTMPS and Appendix B	$405,840	NAVSUP-WSS was identified as the only command requiring manning increase of 1 x GS-13 FTE + 5 x GS-11 FTEs at NAVSUP WSS.
System Configuration	NAVSUP P-732 and NIWC email correspondence	$0	Administrative RSUPPLY configuration updates only.

Inventory capitalization is expected to occur through a non-reimbursable administrative transfer from TYCOM to NAVSUP. According to 10 U.S.C. § 2208, "a supply management activity may not make credits to an appropriation funded activity for capitalized inventories" (Department of Defense, 2023, para. 5.7.1). In practice, this means TYCOM relinquishes ownership of the inventory without receiving financial compensation, and the inventory is added to NAVSUP's wholesale account.

Once capitalized, ships must still use OPTAR funds to requisition these parts from NAVSUP, even if they originally procured the same items under the mission-funded model. However, FMR Volume 4, Chapter 4 allows an activity to request, as part of its formal budget submission to Congress, that the Under Secretary of Defense (Comptroller) authorize issues without reimbursement (Department of Defense, 2023).

This process aligns with the NWCF's cost-recovery structure and does not result in double payment. Nevertheless, it presents a significant operational consideration for TYCOMs, which must ensure that future OPTAR budgets reflect the costs of drawing from inventory that was previously transferred.

System configuration costs were determined to be negligible. Both MF and NWCF ships operate on the same RSUPPLY architecture, and NIWC technical experts confirmed that only minor administrative updates are required, such as modifying unit supply identifier codes and adjusting routing identifier codes. No reinstallation, software reconfiguration, or external technical support is anticipated.

Manpower costs represent the only recurring expense identified in the transition. Based on the resources used to analyze shipboard manning, TYCOM, and NAVSUP staffing, the study estimates an annual cost of $405,840 to support one GS-13 and five GS-11 full-time equivalents at NAVSUP WSS. These positions would be responsible for managing approximately 1.89-million-line items across the 117 transitioning ships. This estimate reflects base pay only and excludes fringe benefits, training, or overhead costs. Manning levels aboard ships and at the TYCOM level are not expected to increase, as the transfer of inventory ownership to NAVSUP does not introduce a significant change to workload requirements for shipboard personnel or TYCOM staff.

In summary, the cost of implementation analysis reinforces that transitioning unit-level ships to NWCF is financially feasible and administratively achievable. While the loss of inventory ownership without reimbursement may be a concern for TYCOMs, the model's long-term benefits, such as centralized inventory control, improved funding transparency, and greater supply responsiveness, justify the modest upfront adjustments.

E. QUALITATIVE ANALYSIS

While quantitative metrics assess cost and effectiveness, the success of transitioning mission funded ships to NWCF also depends on institutional and operational factors. This section examines three critical areas that influence implementation feasibility: (1) procedural adaptation and training, (2) policy alignment and cultural integration, and

(3) inventory accountability and audit demands. Together, these elements provided insight into how the shift to NWCF could be absorbed by the fleet with minimal disruption.

1. Procedural Adaptation and Training Requirements

While transitioning unit-level ships to NWCF introduces some procedural and training updates, these changes largely build on existing practices already familiar to the fleet. Current guidance, such as NAVSUP P-485 and TYCOM instructions, already govern NWCF operations for NWCF ships, and TYCOMs routinely manage these standards. Expanding the model across additional platforms would involve only minor administrative steps, such as the annual inventory plans, would need to be forwarded to PACFLT or USFFC via TYCOM, rather than just TYCOM submission as it is currently set for mission funded ships.

Training at Navy Supply Corps School (NSCS) and LS "A" School already incorporates NWCF fundamentals. Enhancing this teaching with additional emphasis on NAVSUP inventory management, audit trails, and reconciliation practices would represent a refinement, not an overhaul, of the current curriculum. Over time, supply policies and instructions can be updated to eliminate now-redundant distinctions between force (NWCF)- and unit (MF)-level platforms.

These adjustments are not extraordinary; they reflect the Navy's standard process of adapting policies and training as mission demands evolve. With coordinated messaging and stakeholder alignment, including TYCOMs, NAVSUP, OPNAV, logistics enterprise, and the fleets, this transition can be integrated into existing governance processes without significant disruption. Furthermore, the National Academy of Public Administration (2024) advocated the development of specialized NWCF training programs for senior leaders and staff. These programs are designed to enhance understanding of the financial and operational linkages between the general fund and the NWCF, raise awareness of the potential unintended consequences of decision-making, and promote more informed and effective leadership (NAPA, 2024).

2. Policy Alignment, Procedural Integration, and Cultural Adaptation

Following the establishment of baseline processes and training requirements, the next critical step in transitioning to NWCF is aligning policies and procedures across platforms. This integration must be carefully coordinated, with TYCOM leading efforts in collaboration with NAVSUP to standardize inventory ownership transfers, afloat stock management, and financial reconciliation through RSUPPLY and Navy ERP systems.

Currently, unit-level ships operate under mission funding, where inventory is purchased with OPTAR and owned outright by the ship. In this model, issues and transfers MILSTRIPS serve primarily as accountability records, not financial transactions. Under the NWCF model, the inventory is NAVSUP-owned, and all issues or transfers must be reimbursed through OPTAR at the time of requisition. This shift necessitates clearly defined financial procedures to avoid improper accounting and ensure ships are not issuing already onboard materiel without funding.

Cultural dynamics must also be addressed. Afloat supply officers accustomed to broader flexibility under mission funding may perceive the NWCF's customer-provider structure as restrictive. For example, if a ship lacks available OPTAR but has the required part on hand, that part cannot be issued under NWCF until funding is secured. Under the current MF model, supply officers could release such materiel at their discretion, ensuring operational continuity even when funding was constrained.

However, we find it curious that MF ships have a higher PRRV, implying they are resource constrained. This could lead one to believe that because they have pre expended or pre purchased inventory available to them they should have a correspondingly higher level of effectiveness. We likely do not see this effectiveness increase as the MF ship is using their current year OPTAR to buy parts that will not be consumed in the present year. In contrast, the NWCF ship can devote its entire OPTAR to current year needs.

To mitigate resistance, transition planning must emphasize deliberate change management. "Senior leaders from OPNAV, the program offices, and the NWCF should reinforce the importance of breaking down organizational silos and building a culture of transparency and trust... Developing trusting, collaborative working relationships depends

on sustained commitment from leaders of all involved entities and requires a shift in organizational culture" (NAPA, 2024, p. 3). Engagement with TYCOMs, NAVSUP, and afloat commands should include clear communication strategies, targeted training (e.g., via Afloat Training Group), and structured feedback loops. Ensuring supply officers understand and are involved in shaping procedural changes will be critical to fostering buy-in and ensuring successful adoption. Ultimately, implementation success will depend as much on cultural acceptance as on policy alignment.

3. Transparency and Inventory Accountability

While the NWCF model enhances enterprise visibility and financial accountability (Norell et al., 2019), it also introduces stricter oversight requirements that may limit local flexibility. All inventory transactions under NWCF must be fully auditable, price-justified, and traceable to NAVSUP ownership and financial systems. This heightened scrutiny promotes fiscal discipline but also imposes additional procedural and documentation burdens on afloat units. For example, NWCF policy mandates adherence to NAVSUP P-723 inventory accuracy standards, including a 100% wall-to-wall (W2W) annual inventory for controlled materials (Category C) and a 98% accuracy goal for most other inventory categories (Categories A and B).

These requirements represent a notable shift from the mission-funded model, where inventory accuracy standards, though governed by similar schedules and thresholds per the Supply Afloat 4400.1a instruction, are often applied with greater operational flexibility. While the increased accountability benefits enterprise-level auditability, it may present challenges for afloat logistics teams that lack the personnel, training, or resources needed to meet more stringent NWCF audit and accuracy demands.

In summary, the qualitative analysis suggests that procedural and training changes required by NWCF are incremental and build on existing practices. TYCOMs and training institutions already support NWCF operations for force-level ships, and expansion to MF platforms would largely follow established frameworks. However, policy shifts, particularly the requirement to fund all issues from NAVSUP-owned inventory may limit

afloat flexibility and require careful coordination. Clear guidance and fleet engagement will be essential.

F. CONCLUSION

This chapter presented a structured analysis of the Navy Working Capital Fund and Mission Funding structures using a Multi-Objective Decision-Making framework. Effectiveness was measured through a combination of performance metrics: gross effectiveness, net effectiveness, and COSAL allowance effectiveness; and funding availability, represented by pending requisition release value. NWCF consistently outperformed MF across all weighting scenarios, with the greatest advantage observed when funding availability was prioritized.

Under equal weighting, NWCF achieved an MOE of 0.6537, compared to 0.4764 for MF. This represented a 17.73% (see Table 2) increase in overall effectiveness. Sensitivity analysis confirmed that NWCF maintained its advantage whether performance or funding availability was given greater priority.

The cost of implementation was found to be minimal. Inventory capitalization involves no new procurement expense, and system configuration changes are administrative in nature. The only recurring cost identified was an estimated $405,840 in annual manpower requirements at NAVSUP to manage the expanded inventory scope. This cost structure supports the feasibility of transition from a financial standpoint.

A qualitative assessment further identified institutional and operational factors that could influence transition outcomes, including procedural training, cultural resistance, and command-level autonomy. While these do not alter the comparative effectiveness results, they highlight areas that may require consideration during any future implementation planning.

The results presented in this chapter established the analytical foundation for the next phase of this study. Chapter 5 builds upon these findings by outlining recommendations to inform decision-making regarding funding model transitions within the Navy's surface fleet logistics enterprise.

V. CONCLUSION AND RECOMMENDATIONS

Following a comprehensive analysis of MF and NWCF inventory funding methods, the final stage of this research consolidates the key findings, interprets their significance, and outlines recommended actions. The analysis compared NWCF and MF across performance, funding availability, cost, and operational feasibility. By integrating quantitative and qualitative findings, the study offered a foundation for actionable recommendations, ultimately supporting enhanced logistics management and operational readiness across the surface fleet.

A. SUMMARY

The primary objective of this research was to assess the financial viability, operational effectiveness, and impact of transitioning unit-level ship inventories from MF to the NWCF. No initial hypothesis was formed at the outset, allowing the study to maintain objectivity throughout data creation, analysis, and evaluation. The research aimed to examine each funding model's effect on supply effectiveness, evaluate the actual cost of implementation, and assess the overall feasibility of transition across the fleet.

The study employed a MODM framework to compare three key performance metrics of GE, NE, AE, and PRRV over a 30-month period. Metrics were evaluated in relation to the ships' life cycle phases to ensure consistent and operationally meaningful comparisons. Cost and implementation analysis were conducted to estimate inventory capitalization requirements, additional manpower needs, and system configuration adjustments associated with a transition from MF to NWCF. Qualitative factors such as cultural resistance, operational flexibility, and procedural adaptation were assessed to identify non-quantitative risks and broader feasibility considerations.

Through this approach, the study addressed the following research questions:

1. What is the financial viability, operational effectiveness, and overall impact of transitioning inventory funding for unit-level ships in the U.S. Navy from mission-based OPTAR funds to NWCF?

The analysis found that NWCF has an effectiveness measure that is 17.73% greater than MF (Table 2). This could lead to overall effectiveness gains across the fleet for relatively low cost of implementation.

2. What is the impact of unit-level ship inventory capitalization on operational readiness?

The findings showed that transitioning to NWCF is expected to improve fleet operational readiness by increasing materiel availability and reducing funding-driven delays in requisition processing. Lower PRRV under NWCF ensures faster fulfillment of supply requirements, allowing ships to maintain higher inventory levels across all OFRP phases.

3. What is the projected inventory, manpower, and systems cost of transitioning unit-level ships from OPTAR to NWCF?

The projected transition cost is limited to $405,840 annually to support additional manpower at NAVSUP WSS, primarily for inventory reconciliation and management. No new procurement expenses or major system reconfigurations are required, as the transition is expected to rely on administrative realignment of existing inventory and minor RSUPPLY updates.

4. During which OFRP phase should the transition occur to minimize operational disruption?

Based on a ship's OFRP schedule, the most optimal transition time would be during a CNO availability period. This prolonged maintenance phase allows for complete inventory accounting and validation, ensuring NAVSUP assumes control over a fully verified and accurate inventory. Integrated Logistics Support (ILS) teams can assist during this phase, minimizing operational disruption and maximizing transition accuracy.

5. What qualitative factors are involved regarding the transition of ships from MF to NWCF?

A qualitative assessment identified institutional and operational factors that could influence transition outcomes, including procedural training, cultural resistance, and

command-level autonomy. While these do not alter the comparative effectiveness results, they highlight areas that may require consideration during any future implementation planning.

B. FINDINGS AND CONCLUSIONS

The research shows that transitioning MF ship inventories to the NWCF offers a clear and measurable improvement in operational effectiveness and funding availability. Across all weighting scenarios applied within the MODM framework, NWCF consistently outperformed MF.

Specifically, under an even 50/50 weighting of performance metrics and funding availability, NWCF achieved a measure of effectiveness of 0.6537, compared to 0.4764 for MF, a difference of 0.1773 points, or a 17.73% improvement (see Table 2). Sensitivity analysis further validated these results, showing that NWCF maintained its advantage even when decision-making priorities were shifted to individually emphasize operational performance or funding flexibility.

To reinforce these findings, Table 4 summarized the MOE outcomes across three weighting scenarios evaluated in this study, and Figure 10 displayed a side-by-side comparison under each weighting scenario.

Table 4. Summary of MOE Comparison Between NWCF and MF

Weighting Scenario	NWCF MOE	MF MOE	Difference	% Improvement
Even Weighing (50 Performance/50 Funding)	0.6537	0.4764	+0.1773	+17.73%
Higher Emphasis on Performance (70%/30%)	0.6633	0.5394	+0.1239	+12.39%
Higher Emphasis on Funding (30%/70%)	0.6663	0.4243	+0.2420	+24.20%

As reflected in Figure 10, NWCF consistently outperformed MF regardless of the weighting priority, whether decision-makers emphasize operational performance, funding availability, or a balanced approach.

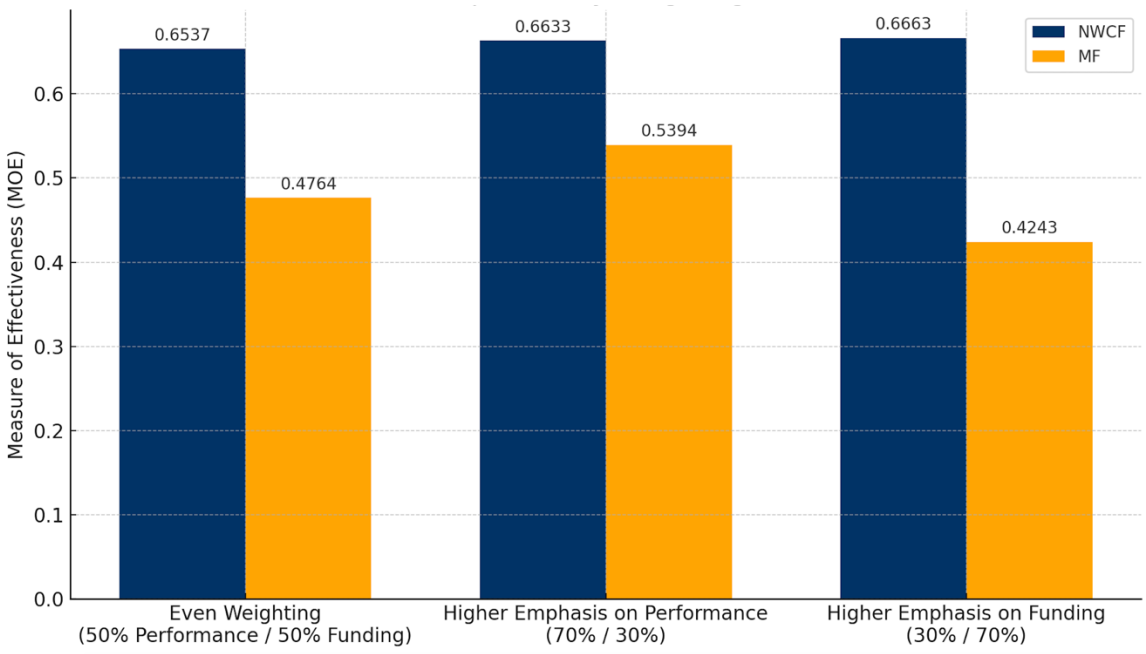


Figure 10. MOE Comparison Across Different Weighting Scenarios

The evaluation of funding availability indicated that NWCF ships maintained significantly lower unreleased requisition values compared to MF ships, particularly during high operational demand phases. This advantage stems from NWCF's structure as a self-replenishing, revolving fund that operates independently of annual appropriations, allowing for more consistent and responsive inventory support across operational cycles (Norell et al., 2019).

Regarding implementation feasibility, the projected recurring transition cost was modest, estimated at $405,840 annually to fund additional NAVSUP manpower requirements. Inventory capitalization costs were classified as administrative, requiring no new procurement actions, and system configuration updates were assessed as insignificant, requiring no additional technical infrastructure investments. These findings, as reflected in Table 5 below, demonstrate that the financial viability of transitioning to NWCF is favorable, directly answering the study's primary research question.

Table 5. Simplified Summary of NWCF Costs

Cost Category	Estimated Cost
Inventory Capitalization	$ 0
Manpower (NAVSUP WSS)	$405,840
System Configuration	$0
Total Annual Recurring Costs	$405,840

In addition to the quantitative findings, qualitative assessment reinforced that while NWCF offers substantial benefits, leadership must proactively manage cultural resistance, ensure thorough training on new procedures, and preserve operational flexibility to maintain the effectiveness of mission funded supply organizations during and after transition. Institutional acceptance will be a critical determinant of long-term success.

Overall, the study validated the primary objective outlined at the outset: assessing whether transitioning to the NWCF model would offer the Navy a cost-effective means of improving operational readiness onboard MF ships, enhancing supply effectiveness, and modernizing fleet logistics management. The analysis demonstrated that the NWCF model provides a sustainable and operationally advantageous funding structure for the currently mission funded surface ships when implemented thoughtfully and phased appropriately.

C. RECOMMENDED IMPLEMENTATION PLAN

A phased and deliberate approach is recommended to transition unit-level surface ships inventory funding from MF to NWCF structure.

1. Phase 1: Planning and Policy Development

To initiate the transition, NAVSUP WSS, working in coordination with TYCOMs through USFFC and PACFLT, should develop a comprehensive transition framework. This framework must address inventory transfer procedures, funding mechanisms, audit requirements, and necessary system updates. As the principal force providers to the Navy's operational commands, USFFC and PACFLT oversee TYCOMs by establishing, maintaining, and certifying readiness standards for ships, aircraft, and personnel. In parallel, Navy logistics policy documents such as NAVSUP P-485 and COMNAVSURFORINST 4400.1a should be revised to explicitly update procedures and best practices for NWCF ship operations.

Early stakeholder engagement will be critical. Briefings with TYCOM leadership, the surface force, ship commanding officers, supply officers, and financial managers should be conducted to build awareness, secure leadership buy-in and ensure alignment across all organizational levels. Additionally, due to the strategic implications of shifting inventory ownership from TYCOM to NAVSUP, higher-level stakeholders, including the fleet commanders, CNO, Secretary of the Navy, and Congressional oversight committees such as the House and Senate Armed Services Committees, should be formally notified of the policy change.

Another critical factor in transition planning is ensuring ships can procure capitalized inventory under NWCF. As requisitions shift to a reimbursement model, TYCOM must forecast OPTAR requirements accordingly during annual budget submissions or follow FMR Volume 4 procedures to request delayed billing authority. Failure to account for these financial demands could result in shortfalls that impact operational readiness and resupply capabilities.

2. Phase 2: Pilot Transition Phase

A small group of MF ships should be selected based on their upcoming maintenance schedules, ideally three to five cruisers or destroyers. Based on a ship's OFRP cycle, the most optimal time to perform the transition is during a CNO availability period, a major planned maintenance event during the ship's maintenance phase. This prolonged phase allows for complete inventory accounting and validation, ensuring NAVSUP assumes control of a fully verified and accurate inventory. Integrated logistics support organizations can assist with ILO during this period to ensure the ship's logistics systems are fully validated and updated to meet mission requirements (COMNAVSURFPACINST 4105.1, 2013). During pilot transitions, targeted training must also be provided to shipboard supply and financial personnel covering NWCF requisition processes, funding management, and financial reconciliation procedures.

3. Phase 3: Full Transition Rollout

Following the successful completion and evaluation of the pilot phase, the NWCF transition should be expanded by ships going into a CNO availability, and this can take an estimated 10–15 years to execute as OFRP phases sometimes are impacted by operational requirements. Lessons learned during the pilot phase should be incorporated to refine transition procedures, training curricula, and policy guidance before scaling fleet wide.

4. Phase 4 (Final Phase): Sustainment and Institutionalization

To ensure permanent adoption, NWCF transition procedures must be codified into official Navy logistics doctrine and TYCOM operational policies. Annual effectiveness reviews should be conducted to assess operational outcomes between transitioned and non-transitioned ships, providing data-driven validation of improvements. Additionally, sustained investment in change management, including success story dissemination, leadership endorsements, and structured feedback loops, will reinforce cultural acceptance and ensure long-term success.

By applying this phased, structured approach anchored around critical maintenance periods such as CNO availabilities, the Navy can execute an orderly, efficient, and operationally beneficial transition that maximizes the long-term advantages of adopting the NWCF model across the surface fleet.

D. RECOMMENDATIONS FOR FUTURE RESEARCH

While the results of this study strongly support transitioning MF ships to the NWCF structure, it is important to acknowledge that the conclusions were drawn based on the available data, which was limited in scope. Therefore, several opportunities exist for future research to refine the analysis, expand the data set, and optimize implementation strategies. Continued study is necessary to strengthen the analytical foundation, adapt to evolving operational dynamics, and ensure the long-term success of a fleet-wide transition.

Data collection and analysis should be expanded. A longer study timescale of five to ten years should be pursued to capture historical trends across multiple fiscal years and better account for operational fluctuations. Performance metrics assessed in the MODM

framework should be expanded to include repair part allowance effectiveness to provide a more targeted measure of repair part readiness, independent of consumables. COSAL metric integrity efforts should be improved by implementing data validation techniques that identify and prevent artificial inflation of performance metrics.

Additional funding availability metrics should be incorporated. Specifically, the DEF-to-RO report should be leveraged to refine funding assessments beyond PRRV alone, particularly for NWCF platforms. Moreover, the fiscal year-end analysis should focus on PRRV and DEF-to-RO trends during critical funding periods to better assess model performance under end-of-year resource constraints.

Future thesis research should investigate the feasibility and policy implications of allowing appropriated fund (APF)/ MF commands to utilize the Return to Stock (RTS) process, rather than mandatory capitalization, when transferring inventory management responsibilities from APF activities to NWCF entities. One of the assumptions underlying this study was that the TYCOM, as an APF command, would willingly allow NAVSUP to capitalize over $2 billion in inventory. However, it is unrealistic to expect a command to relinquish ownership of assets only to repurchase them later under a different funding model. Current DoD FMR guidance restricts RTS to items that are being capitalized for repurchase (Department of Defense, 2023). A future study should examine whether implementing a standardized RTS-like mechanism can prevent APF commands from effectively paying for the same inventory twice during the transition to NWCF.

A finding not addressed in the research, but of interest to the authors involves COSAL allowance effectiveness. The data for COSAL allowance effectiveness for NWCF ships dominated MF ships in nearly every period for 30 months. The root cause for this increase in AE was not determined but could suggest that NWCF ships have an innate increase in supervisory oversight that provides them naturally with a better COSAL product.

Finally, institutional recommendations are essential for long-term success. CMP metric data storage should be expanded from the current two years to a minimum of ten years. A phased transition should be piloted by initially selecting a small group of ships,

thereby refining transition procedures before scaling fleet wide. Leadership must also invest in change management through command-wide communications, targeted training, and proactive engagement with key stakeholders to ensure a successful and sustainable cultural transition.

E. CLOSING STATEMENT

This study provided a data-driven evaluation of transitioning mission funded ship inventories to the NWCF structure and builds on previous research through quantitative and qualitative analysis. The findings demonstrated that NWCF offers measurable improvements in operational readiness, funding responsiveness, and logistical efficiency at a manageable cost. The research showed that, when implemented deliberately and phased appropriately, NWCF can modernize inventory management practices while strengthening the supply posture of the surface fleet.

Moreover, modernizing how the Navy funds shipboard inventories directly support the strategic objectives outlined in the CNO's NAVPLAN 2022 and NAVPLAN 2024. The Navy must ensure supply systems are agile "Through better use of data, improve the resilience and responsiveness of the Navy Supply System by improving parts reliability, allowancing, time in transit, and wholesale procurement" (CNO 2022, p. 17). Transitioning to NWCF aligns with this vision by enhancing supply chain responsiveness and improving financial transparency.

By building on the foundation established in this study through expanded data collection, enhanced performance metrics, and deliberate change management, the Navy can achieve a more resilient, transparent, and operationally effective logistics enterprise.

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APPENDIX A. FIMARS REPORT

As of January 2025

SHIP	TYPE	TYCOM	LINE ITEMS	R/O VALUE	O/H VALUE
PHILIPPINE	CG 58	CNSL	16,720	$25,337,161.61	$19,560,907.36
PRINCETON	CG 59	CNSL	5,698	$5,632,319.11	$5,685,562.96
ROBERT SMALLS	CG 62	CNSL	15,092	$13,557,698.85	$14,110,192.32
GETTYSBURGH	CG 64	CNSL	7,917	$5,989,724.06	$5,911,492.84
CHOSIN	CG 65	CNSL	18,721	$30,890,915.82	$25,566,696.94
SHILOH	CG 67	CNSL	6,773	$5,339,335.13	$5,730,969.63
LAKE ERIE	CG 70	CNSL	16,634	$36,362,010.38	$31,402,254.67
CAPE ST. GEORGE	CG 71	CNSL	11,304	$23,283,753.23	$20,470,713.89
ZUMWALT	DDG 1000	CNSL	18,264	$33,178,650.35	$25,918,036.62
KIDD	DDG 1000	CNSL	17,827	$33,004,585.36	$26,845,191.90
MICHAEL MONSOOR	DDG 1001	CNSL	15,360	$36,317,772.81	$28,440,982.79
GRIDLEY	DDG 101	CNSL	17,825	$34,435,391.27	$30,277,116.24
SAMPSON	DDG 102	CNSL	16,336	$32,195,909.81	$27,419,780.44
TRUXTON	DDG 103	CNSL	14,773	$13,443,617.66	$14,550,495.90
STERETT	DDG 104	CNSL	7,598	$6,319,071.37	$6,319,071.37
DEWEY	DDG 105	CNSL	19,782	$34,536,951.03	$34,295,162.33
STOCKDALE	DDG 106	CNSL	18,636	$30,171,626.32	$29,060,169.32
GRAVELY	DDG 107	CNSL	17,164	$30,673,025.52	$29,943,005.47
WAYBE E MEYER	DDG 108	CNSL	25,688	$35,150,253.46	$29,852,047.27
JASON DUNHAM	DDG 109	CNSL	16,091	$35,147,602.75	$27,892,907.60
WILLIAM P. LAWRENCE	DDG 110	CNSL	15,125	$34,969,359.22	$30,161,737.49
SPRUANCE	DDG 111	CNSL	15,256	$38,395,241.39	$26,463,724.61
MICHAEL MURPHY	DDG 112	CNSL	15,390	$32,319,742.15	$30,098,382.41
JOHN FINN	DDG 113	CNSL	15,329	$32,054,720.62	$24,803,703.93
RALPH JOHNSON	DDG 114	CNSL	21,357	$31,011,068.80	$28,816,705.36
RAFAEL PERALTA	DDG 115	CNSL	18,274	$50,021,013.45	$25,663,045.07
THOMAS HUDNER	DDG 116	CNSL	16,308	$27,956,140.50	$24,550,554.40
PAUL IGNATIUS	DDG 117	CNSL	14,332	$12,026,710.47	$13,020,804.23
DANIEL INOUYE	DDG 118	CNSL	18,446	$27,817,444.85	$25,115,831.06
DELBERT BLACK	DDG 119	CNSL	18,574	$36,901,305.62	$27,655,993.15
CARL M LEVIN	DDG 120	CNSL	18,939	$28,385,688.73	$22,863,161.47
FRANK E PETERSEN	DDG 121	CNSL	18,204	$26,077,087.45	$22,033,565.31
LENAH H SUTCLIFFE HIGBEE	DDG 123	CNSL	16,626	$24,928,161.96	$21,107,391.06
JACK H LUCAS	DDG 125	CNSL	16,415	$24,093,490.08	$22,240,615.90
ARLEIGH BURKE	DDG 51	CNSL	18,302	$25,165,518.26	$22,306,715.96
USS BARRY	DDG 52	CNSL	16,184	$38,056,011.53	$25,735,326.92
JOHN P JONES	DDG 53	CNSL	18,326	$30,010,941.71	$30,010,941.71
CURTIS WILBUR	DDG 54	CNSL	15,167	$21,547,742.99	$18,139,167.57
STOUT	DDG 55	CNSL	19,865	$19,817,581.45	$18,173,231.86
JOHN S MCCAIN	DDG 56	CNSL	15,921	$20,073,096.30	$20,078,865.27
MITSCHER	DDG 57	CNSL	10,913	$15,161,225.66	$10,344,472.71
LABOON	DDG 58	CNSL	14,149	$24,483,510.25	$19,230,499.93
RUSSELL	DDG 59	CNSL	16,361	$29,348,256.37	$19,477,710.76
PAUL HAMILTON	DDG 60	CNSL	15,662	$30,241,879.36	$18,982,192.07
RAMAGE	DDG 61	CNSL	16,429	$30,050,330.18	$21,894,269.08
FITZGERALD	DDG 62	CNSL	2,023	$1,648,506.41	$583,013.86

STETHEM	DDG 63	CNSL	2,722	$738,228.99	$679,932.88
CARNEY	DDG 64	CNSP	16,967	$13,901,284.61	$14,973,600.22
BENFOLD	DDG 65	CNSP	15,747	$25,394,347.52	$20,428,656.78
GONZALEZ	DDG 66	CNSP	10,846	$39,497,452.07	$24,972,185.23
COLE	DDG 67	CNSP	19,037	$31,672,659.39	$28,128,522.82
THE SULLIVANS	DDG 68	CNSP	22,189	$27,921,350.72	$24,567,755.95
MILIUS	DDG 69	CNSP	18,694	$31,669,729.79	$30,846,566.01
HOPPER	DDG 70	CNSP	17,044	$11,364,238.63	$13,871,777.01
ROSS	DDG 71	CNSP	7,743	$7,374,743.90	$6,922,233.83
MAHAN	DDG 72	CNSP	7,545	$6,922,233.83	$5,999,324.84
DECATUR	DDG 73	CNSP	6,181	$7,660,384.20	$5,547,946.97
MCFAUL	DDG 74	CNSP	17,934	$12,375,770.04	$14,760,883.65
DONALD COOK	DDG 75	CNSP	19,840	$12,740,262.89	$13,773,695.71
HIGGINS	DDG 76	CNSP	16,313	$21,148,346.15	$24,156,984.84
O'KANE	DDG 77	CNSP	14,049	$8,538,197.23	$9,302,556.56
PORTER	DDG 78	CNSP	19,680	$30,905,334.42	$27,969,110.17
OSCAR AUSTIN	DDG 79	CNSP	18,150	$37,756,112.93	$32,491,366.57
ROOSEVELT	DDG 80	CNSP	16,920	$34,271,282.96	$26,200,853.90
WINSTON CHURCHILL	DDG 81	CNSP	21,205	$35,012,731.10	$32,806,982.02
LASSEN	DDG 82	CNSP	20,894	$38,442,519.07	$33,367,042.22
HOWARD	DDG 83	CNSP	20,093	$36,691,090.67	$30,482,880.24
BULKELEY	DDG 84	CNSP	19,037	$40,057,129.78	$38,142,354.37
MCCAMPBELL	DDG 85	CNSP	19,621	$41,654,645.88	$30,433,894.33
SHOUP	DDG 86	CNSP	21,143	$27,802,372.45	$27,931,280.13
MASON	DDG 87	CNSP	26,854	$22,570,531.13	$22,570,531.13
PREBLE	DDG 88	CNSP	17,565	$13,182,495.06	$14,244,061.83
MUSTIN	DDG 89	CNSP	7,785	$6,367,225.42	$5,261,240.19
CHAFEE	DDG 90	CNSP	22,675	$37,872,903.41	$30,144,922.15
PINCKNEY	DDG 91	CNSP	21,625	$36,869,510.82	$36,869,510.82
MOSEN	DDG 92	CNSP	4,421	$990,213.14	$1,108,780.27
CHUNG	DDG 93	CNSP	20,822	$29,078,520.52	$32,470,551.18
NITZE	DDG 94	CNSP	19,866	$38,691,067.72	$32,968,041.02
JAMES E. WILLIAMS	DDG 95	CNSP	22,346	$32,968,041.02	$32,555,929.47
BAINBRIDGE	DDG 96	CNSP	16,928	$18,554,179.93	$17,369,109.28
HALSEY	DDG 97	CNSP	16,510	$28,243,047.47	$22,318,860.41
FORREST SHERMAN	DDG 98	CNSP	18,915	$22,318,860.41	$29,660,712.57
FARRAGUT	DDG 99	CNSP	19,610	$35,164,002.67	$26,530,254.58
LEWIS B PULLER	ESB 3	CNSP	20,436	$34,135,864.25	$26,140,302.06
HERSHEL W WILLIAMS	ESB 4	CNSP	21,598	$31,979,509.55	$29,453,946.39
MIGUEL KEITH	ESB 5	CNSP	21,003	$30,376,005.72	$24,612,172.90
JOHN L CANLEY	ESB 6	CNSP	17,298	$58,221,042.73	$21,825,116.46
BLUE RIDGE	LCC 19	CNSP	22,832	$34,137,159.28	$34,137,159.28
SAN ANTONIO	LPD	CNSP	20,702	$31,203,477.50	$25,598,739.02
NEW ORLEANS	LPD 18	CNSP	18,896	$32,627,972.37	$26,722,716.41
MESA VERDE	LPD 19	CNSP	141	$159,906.80	$54,917.57
GREEN BAY	LPD 20	CNSP	22,147	$28,528,834.95	$24,765,423.83
NEW YORK	LPD 21	CNSP	20,282	$42,694,300.92	$23,277,949.49

SAN DIEGO	LPD 22	CNSP	20,368	$27,510,581.57	$20,534,412.70
ANCHORAGE	LPD 23	CNSP	20,304	$26,599,101.56	$20,602,024.12
ARLINGTON	LPD 24	CNSP	18,258	$30,195,425.14	$23,277,490.39
SOMERSET	LPD 25	CNSP	1,258	$1,166,466.40	$1,166,466.40
JOHN P MURTHA	LPD 25	CNSP	21,366	$18,397,795.26	$17,979,159.85
PORTLAND	LPD 27	CNSP	13,237	$18,073,133.04	$16,370,197.93
FT LAUDERDALE	LPD 28	CNSP	9,578	$32,198,120.96	$22,089,448.49
GERMANTOWN	LSD 42	CNSP	1,990	$467,503.04	$239,692.04
GUNSTON	LSD 44	CNSP	18,663	$26,223,855.60	$26,223,855.60
COMSTOCK	LSD 45	CNSP	20,108	$20,728,557.61	$17,658,379.50
RUSHMORE	LSD 47	CNSP	19,168	$22,616,041.42	$19,149,105.23
ASLAND	LSD 48	CNSP	13,740	$18,320,785.96	$16,730,890.16
USS HARPERS FERRY	LSD 49	CNSP	17,570	$36,713,119.33	$25,836,399.55
CARTER HALL	LSD 50	CNSP	13,716	$22,098,179.73	$20,368,059.55
OAK HILL	LSD 51	CNSP	13,866	$23,471,179.52	$18,835,121.66
PEARL HARBOR	LSD 52	CNSP	13,338	$30,259,731.74	$18,541,331.71
WARRIOR	MCM 10	CNSP	14,764	$24,170,690.79	$15,496,339.17
GLADIATOR	MCM 11	CNSP	12,955	$21,222,980.69	$16,237,208.36
DEXTROUS	MCM 13	CNSP	11,644	$19,716,447.34	$19,716,447.34
CHIEF	MCM 14	CNSP	18,955	$29,819,609.68	$25,698,249.04
SENTRY	MCM 3	CNSP	22,004	$23,100,625.50	$20,294,357.77
DEVASTATOR	MCM 6	CNSP	16,993	$26,777,044.20	$20,672,936.46
PATRIOT	MCM 7	CNSP	17,277	$29,746,977.76	$22,045,589.06
PIONEER	MCM 9	CNSP	2,652	$689,559.23	$859,887.98
	TOTAL LINE ITEM		**1,886,703**		
			TOTAL R/O VALUE	**$2,849,150,621.78**	
				TOTAL O/H VALUE	**$2,366,407,976.02**

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APPENDIX B. N85 MEMO

N85B Organic TIRs Team

Good Morning! My name is Drew Johnson, Supervisor for the Organic TIRs team for Inventory Accuracy N85B. The introduction of 117 additional ships to NWCF would require those ships to report their transactions with either Relational Supply (RSupply) or Shipboard Configuration and Logistics Program (ShipClip) depending on the ship's mission and function. Currently, we have 101 ships reporting via RSupply and 40 ships reporting via ShipClip.

For Navy ERP understanding, we have transactions from reporting systems called Intermediate Documents (IDOCs). These transactions can be receipts, issues, gains, losses, condition code changes, or end of day balances. For end of day balances, those transactions are DZA or DZH. Once a DZA/DZH IDOC transmits to Navy ERP, Navy ERP will do a comparison of the on hand currently in Navy ERP and of the quantity sent in from the Reporting System. If there is a difference between the quantities, Navy ERP will generate a movement to plus or minus our inventory to match what was reported from the Reporting System. These movements are either a 909 URB Gain or a 908 URB Loss. These movements allow us to keep us in sync and allow us to see where inventory differences have occurred. Most of my team's work is regarding the DZA/DZH IDOCs and the generation of 909s/908 URBs and navigating Navy ERP to correct these 909s/ 908 URBs.

For Organic TIRs, we handle inventory accuracy related requests for our Organic Reporting Plants for NWCF, RSupply and ShipClip being two of the reporting systems. For my teams dealing with RSupply and ShipClip, the bulk of our workload is managing the Annual Reporting BLA to ERP Comparisons, working Unreconciled Balances (URBs), and working additional invalid inventory requests. I have two teams currently, one team is working the BLA to ERP Comparison and invalid inventories, and one team that is working the URBs that are generated. This workload requires a lot of research in Navy ERP (looking at transactions, NIIN information, Failed IDOCs, etc.) and getting support from Afloat/Marine Aviation Logistics Liaison Office (AMALLO) on finding the solutions from the Fleet.

For the BLA to ERP Comparisons, we have an annual requirement for RSupply and Shipclip reporting plants (all 141 plants) to process the comparisons. This process requires coordination between several parties to get the comparisons scheduled between the fleet, our contractor support at AMALLO, and ourselves. Once the comparisons are processed from the fleet to AMALLO who uploads the files into Navy ERP, my team will pull the data in Navy ERP to get the comparison data. Through this comparison data, we can find inventory issues between RSupply/ShipClip and Navy ERP. The inventory issues falling into three categories, DZA Failures (Issues with NIINs, COGs, etc.), URBs,

and BCRs (Inventory that is showing in ERP that RSupply/ShipClip didn't report as on hand). Working with AMALLO, we can correct these inventory issues.

For the URB team, they work the URBs generated from RSupply and ShipClip reporting plants. A URB indicating there was an inventory quantity difference between what the plants reported as on hand and what Navy ERP reported as on hand. As of Feb 2025, for the 141 RSupply/ShipClip reporting plants, we have 9,323 URBs that have not been cleared for a dollar value of $60,699,597.29. Through the clearing of URBs, we can correct inventory issues, see trends where there may be errors in RSupply/ShipClip or Navy ERP, or see where other issues generated the URB.

Currently, I have 5 employees on the BLA to ERP Comparison team and 6 employees working for the URB team. In my assumption, our workload would essentially be doubled if we would add an additional 117 ships to NWCF. The assumption then being that would require more coordination for the additional ships added to the comparison workload and the additional URBs (assuming 18,000 URBs for $120 million). With this assumption, I would need an additional 6 FTEs to help handle the BLA to ERP Comparison, the invalid inventories, and the URBs generated from the two systems.

APPENDIX C. FLTMPS LS MANNING DATA

As of January 2025

Rating/NEC: LS LOGISTICS SPECIALIST
Activity: N21624 CG 64 GETTYSBURG

Total: P0			Total: P4		
BA	COB	M+1	BA	COB	M+1
13	12	0	13	13	0

Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E7	COB	0	0	0	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E6	COB	2	2	2	2	2	2	2	2	2	2	0
2000	E5	BA	5	5	5	5	5	5	5	5	5	5	0
2000	E5	COB	4	4	4	4	4	4	4	3	3	3	0
2000	E4	BA	2	2	2	2	2	2	2	2	2	2	0
2000	E4	COB	4	4	4	4	4	4	3	3	3	3	0
2000	E3	BA	4	4	4	4	4	4	4	4	4	4	0
2000	E3	COB	2	2	2	2	2	2	2	2	2	2	0

Rating/NEC: LS LOGISTICS SPECIALIST
Activity: N21429 CG 58 PHILIPPINE SEA

Total: P0			Total: P4		
BA	COB	M+1	BA	COB	M+1
11	15	0	11	14	0

Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E7	COB	2	2	1	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E6	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E5	BA	3	3	3	3	3	3	3	0	0	0	0
2000	E5	COB	4	4	4	4	4	4	3	3	3	3	0
2000	E4	BA	2	2	2	2	2	2	2	0	0	0	0
2000	E4	COB	4	4	4	4	4	4	4	4	4	4	0
2000	E3	BA	4	4	4	4	4	4	4	0	0	0	0
2000	E3	COB	4	4	4	4	4	4	4	4	4	4	0

Rating/NEC: LS
Activity: N21449 CG 60 NORMANDY

Total: P0			Total: P4		
BA	COB	M+1	BA	COB	M+1
11	12	0	11	12	0

Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E8	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E6	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E5	BA	3	3	3	3	3	3	3	0	0	0	0
2000	E5	COB	4	4	4	4	4	4	3	3	3	3	0
2000	E4	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E4	COB	3	3	3	3	3	3	3	3	3	3	0
2000	E3	BA	5	5	5	5	5	5	5	0	0	0	0
2000	E3	COB	3	3	3	3	3	3	3	3	3	3	0

Rating/NEC: LS LOGISTICS SPECIALIST
Activity: N21447 CG 59 PRINCETON

Total: P0			Total: P4		
BA	COB	M+1	BA	COB	M+1
11	9	0	11	13	0

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Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E8	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E6	COB	0	2	2	2	2	2	2	2	2	2	0
2000	E5	BA	3	3	3	3	3	3	3	3	3	3	0
2000	E5	COB	3	3	3	3	3	3	3	3	3	3	0
2000	E4	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E4	COB	2	3	3	3	3	3	3	2	2	2	0
2000	E3	BA	5	5	5	5	5	5	5	5	5	5	0
2000	E3	COB	3	4	4	4	4	4	4	4	4	4	0

Rating/NEC: LS LOGISTICS SPECIALIST
Activity: N21451 CG 62 ROBERT SMALLS

Total: P0			Total: P4		
BA	COB	M+1	BA	COB	M+1
11	11	0	11	10	0

Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	1	0	0	0
2000	E8	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	1	0	0	0
2000	E6	COB	2	2	2	2	1	1	1	1	0	0	0
2000	E5	BA	3	3	3	3	3	3	3	3	0	0	0
2000	E5	COB	3	3	3	3	3	3	3	3	3	3	0
2000	E4	BA	1	1	1	1	1	1	1	1	0	0	0
2000	E4	COB	2	2	2	2	2	2	2	2	2	2	0
2000	E3	BA	5	5	5	5	5	5	5	5	0	0	0
2000	E3	COB	3	3	3	3	3	3	3	3	3	3	0

Rating/NEC: LS LOGISTICS SPECIALIST
Activity: N21625 CG 65 CHOSIN

Total: P0		
BA	COB	M+1
11	11	0

Total: P4		
BA	COB	M+1
11	10	0

Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E8	COB	2	1	1	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	1	1	1	0
2000	E6	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E5	BA	3	3	3	3	3	3	3	3	3	3	0
2000	E5	COB	3	2	2	2	2	2	2	2	2	2	0
2000	E4	BA	2	2	2	2	2	2	2	2	2	2	0
2000	E4	COB	3	3	3	3	3	3	3	3	3	3	0
2000	E3	BA	4	4	4	4	4	4	4	4	4	4	0
2000	E3	COB	2	3	3	3	3	3	3	3	3	3	0

Rating/NEC: LS LOGISTICS SPECIALIST
Activity: N21827 CG 70 LAKE ERIE

Total: P0		
BA	COB	M+1
13	14	0

Total: P4		
BA	COB	M+1
13	13	0

Desig RCN	Paygrade	Abbr Type	COB	P1	P2	P3	P4	P5	P6	P7	P8	P9	MOB (M+1)
Desig Rating/NEC: LS													
2000	E8	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E8	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E6	BA	1	1	1	1	1	1	1	0	0	0	0
2000	E6	COB	1	1	1	1	1	1	1	1	1	1	0
2000	E5	BA	5	5	5	5	5	5	5	0	0	0	0
2000	E5	COB	6	6	6	6	6	6	5	4	4	4	0
2000	E4	BA	2	2	2	2	2	2	2	0	0	0	0
2000	E4	COB	4	4	4	3	3	3	3	3	3	3	0
2000	E3	BA	4	4	4	4	4	4	4	0	0	0	0
2000	E3	COB	2	2	2	2	2	2	2	2	2	2	0

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