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14. ABSTRACT
The Marine Corps Strategic Health Assessment (MCSHA) is a means to identify and communicate strategic health goals, monitor progress toward meeting its objectives, and improve underlying information used to support decisions. The Marine Corps continues to develop a performance management framework and annual strategic health assessment to help assess the impact of resource allocation decisions on institutional readiness. This paper provides evidence that the Current Unit Readiness pillar of the MCSHA can be improved by refining institutional readiness goals, improving performance indicators, and updating policy for verifying data integrity.

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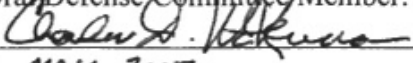
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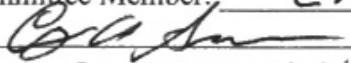
Improving Ground Equipment Readiness Input for the Marine Corps Strategic Health
Assessment

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

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Executive Summary

Title: Improving Ground Equipment Readiness Input for the Marine Corps Strategic Health Assessment (MCSHA)

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Thesis: The Current Unit Readiness pillar of the MCSHA can be improved by refining institutional readiness goals, performance indicators, and policy for verifying data integrity.

Discussion: MCSHA is a means to identify and communicate strategic health goals, monitor progress toward meeting its objectives, and improve underlying information used to support decisions. MCSHA measures strategic health in five distinct, but interrelated readiness pillars: High Quality People, Current Unit Readiness, Capacity to meet DoD Strategic Requirements, Infrastructure Sustainment, and Equipment Modernization. MCSHA attempts to measure and quantify performance indicators to link resources to institutional readiness to help inform future investment decisions. To ensure the assessment is meaningful, the metrics and performance indicators must be meaningful and measurable. The Marine Corps continues to develop a performance management framework and annual strategic health assessment to help assess the impact of resource allocation decisions on institutional readiness. As development of MCSHA continues, identifying and resolving existing problems is vital to the Marine Corps' institutional readiness goals, performance indicators, and data integrity.

Conclusion: The information reported in the Current Unit Readiness pillar of the MCSHA would be more relevant and reliable if the Marine Corps established a working group under the leadership of DC PP&O to develop the performance indicators for institutional readiness goals. The current policy allowing stakeholders to develop metrics of success within their own commodities prevents establishment of a service-wide understanding of readiness. The service could benefit from streamlined strategic planning guidance that simplifies supporting processes, clarifies the service vision, and unifies the efforts of senior leaders. More specifically regarding data management, the Marine Corps should establish updated policies to address the current gaps between requirements determination, procurement, and distribution of equipment. Finally, the Marine Corps should build structure in C4 to supervise development of Authoritative Data Sources (ADS) and information systems. Many of the service's problems in readiness reporting and data quality are symptoms of the legacy ADS that were developed in isolation as stand-alone programs.

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Introduction

Tightening defense budgets and competition for resources among the military services have made it vitally important for the Marine Corps to accurately measure readiness and ensure resources are effectively allocated to developing the future force. The Marine Corps Strategic Health Assessment (MCSHA) was developed to provide a comprehensive organizational readiness assessment and was formally established in Marine Corps Requirements Oversight Council (MROC) Decision Memorandum 25-2013 of 18 April 2013.¹ The primary intent for the assessment is to provide the means to identify and communicate strategic health goals, monitor progress toward meeting its objectives, and improve underlying information used to support decisions.² MCSHA measures strategic health in five distinct, but interrelated readiness pillars: High Quality People, Current Unit Readiness, Capacity to meet DoD Strategic Requirements, Infrastructure Sustainment, and Equipment Modernization.³

MCSHA attempts to measure and quantify performance indicators to link resources to institutional readiness to help inform future investment decisions. If MCSHA is successful, it will improve information feeding the Planning, Programming, Budgeting and Execution (PPBE) system.⁴ With the expectation of continued funding limitations and possible reductions, it is vital for the Marine Corps to understand how to best maintain a ready force, within financial restraints. To ensure the assessment is relevant, the metrics and performance indicators must be meaningful and measurable. The Marine Corps continues to develop a performance management framework and annual strategic health assessment to help assess the impact of resource allocation decisions on institutional readiness.⁵ The Current Unit Readiness pillar of the Marine Corps Strategic Health Assessment can be improved by refining institutional readiness goals, performance indicators, and policy for verifying data integrity.

Title 10 & DOD Readiness Reporting Requirements

The source requirement for the Marine Corps and other military services within the Department of Defense (DOD) to report readiness is established in Title 10 of the US Code. In addition to requiring the Secretary of Defense (SecDef) to report readiness to Congressional committees, Title 10 also requires the SecDef to establish a comprehensive readiness reporting system for the Department of Defense that measures armed forces capabilities in an objective, accurate, and timely manner.⁶ In order to meet the Title 10 definition of ready, the U.S. military must be able to execute the President's National Security Strategy, specific defense planning guidance provided by the Secretary of Defense, and the National Military Strategy prescribed by the Chairman of the Joint Chiefs of Staff.⁷

Title 10 specifies requirements for DOD's readiness reporting system to ensure the system is applied uniformly throughout DOD and sufficient resources are provided to establish and maintain the system.⁸ To maintain an accurate assessment of capabilities within DOD, information in the system is continually updated. If a unit has a change in its overall readiness status, the system must be updated within 24 hours of the change in unit readiness. If a training establishment or an element of defense infrastructure is required to be reported as part of the readiness reporting system, and has a change in the overall readiness status, that change must be reported within 72 hours.⁹

Commandant's Readiness Guidance

In addition to meeting reporting requirement for current readiness, it is also important for the services to plan, program and budget to ensure readiness in the future. Shortly after becoming Commandant of the Marine Corps, General Robert B. Neller published specific guidance in the Marine Corps Operating Concept (MOC) to ensure the Marine Corps remained a

ready force. The MOC gives a broad-term description of how Marine forces will conduct the range of military operations in accordance with the Corps' Title 10 responsibilities. It provides the foundations and context to develop guides, analysis, wargaming and experimentation, while informing capability development and budget programming decisions.¹⁰ The MOC also provides a basis to develop subordinate operating and functional concepts that, in their simplest forms, are ideas that are matured and refined through exploration, debate and discussion.¹¹

As part of his "Total Force Approach to Readiness" General Neller provided specific guidance for development of the Marine Corps' ground equipment to meet future force requirements.¹² He emphasized the importance of the Marine Corps' investment to continue to organize, train, and equip a force focused on the capabilities required to establish lodgments and seize advanced Naval bases.¹³ General Neller also emphasized the importance for senior leaders in the Marine Corps to gain an understanding of the full requirements to conduct these operations. Some fundamental, and often overlooked, requirements are the ability to closely coordinate follow-on forces, identify the necessary conditions to establish additional supporting lodgments, and possess the ready capabilities to support those efforts.¹⁴ Once lodgments and advanced Naval bases are established, the ability to rapidly maneuver deep into the battlespace is vital to maintain operational momentum.¹⁵

Institutional Readiness Goals

The Marine Corps developed Institutional Readiness Goals to look beyond simple readiness metrics and establish qualitative measurements for its performance management process. The first step in building a performance management process is to assess the desired end-state and then develop an analytic framework capable of directly tying front-end resources to readiness objects.¹⁶ The Marine Corps defined "strategic health" in terms of the five pillars of

institutional readiness and identified specific goals for each pillar.¹⁷ The Marine Corps is in the process of developing Strategic Performance Indicators to ensure the service moves beyond identifying goals and develops the ability to accomplish them. The initial focus is on developing a range of high-level performance indicators that can measure progress toward meeting strategic goals.¹⁸ The indicators must then be developed down to specific operational activities, while ensuring the performance indicators are understandable, meaningful, and measurable.¹⁹

The need to validate strategic health has become increasingly important as DoD becomes more fiscally austere and the debate over the defense budget becomes a debate over readiness.²⁰ “Nearly every part of the defense budget is related to readiness in one form or another, whether through pay and benefits for military personnel, funding for training and maintenance, or the development and procurement of weapon systems.”²¹ Before the Marine Corps, and other services, can have an informed debate regarding the allocation of defense spending, Congress and DoD must first develop a formal definition for military readiness and how readiness is affected by budget decisions.²²

The Marine Corps’ Institutional Readiness Pillars originated from an operational planning team that met within Headquarters Marine Corps (HQMC) in early 2015 to study all aspects of Marine Corps readiness and identify institutional challenges to maintaining a ready force.²³ The group was tasked with developing recommended courses of action to accomplish three separate objectives. The first was to ensure the Marine Corps maintained and improved the ability to produce ready forces.²⁴ The second objective was to improve the processes the Marine Corps uses to prioritize and allocate resources to achieve readiness.²⁵ The third objective was to improve the Marine Corps’ institutional understanding of how current choices affect future readiness.²⁶ If the courses of action developed by the group were successful, the Marine Corps

would also gain an understanding of how to correctly balance investments to ensure current readiness, while building the ready force needed in the future. However, balancing current and future readiness poses a dilemma that cannot be resolved by simply comparing input and output. Instead, this balance requires the "art" associated with making investment decisions that improve current readiness in some areas without sacrificing future readiness in others.²⁷

The team recommended establishing the five Institutional Readiness Pillars to accurately represent the operational and foundational components of readiness across the Marine Corps. In addition to serving as the foundation for MCSHA, the pillars of readiness are the gauge for how the Marine Corps prioritizes and allocates resources. The pillars clearly segregate efforts for advocates in HQMC to ensure forward-deployed Marines and Sailors are properly manned, trained and equipped, while others seek to maintain balanced investment across the pillars to ensure current and future readiness.²⁸ Although capability development remains the responsibility of Marine Corps Combat Development Command (MCCDC) and Combat Development and Integration (CD&I) within HQMC, the readiness pillars provide a vital input and feedback mechanism for other stakeholders throughout the Marine Corps to inform those decisions.

The team also established a performance management framework within MCSHA to help assess the impact of resource allocation decisions on institutional readiness.²⁹ The performance management framework attempts to quantify indicators and readiness input to link resources to institutional readiness and inform future investment decisions.³⁰ Although many of the metrics supporting the framework are still being developed, the Marine Corps has the opportunity to establish metrics and performance indicators that are both meaningful and measurable in order to ensure the overall MCSHA results are relevant. If successful, the performance indicators will

serve as another step to refine the science by which the Marine Corps measures readiness. However, the art of balancing investments to maintain current readiness, while modernizing to build the ready force of the future, continues to be a challenge.³¹

Proposed Changes to Institutional Readiness Goals

While the developing Institutional Readiness Pillars and the Performance Management Framework are steps in the right direction to establish quality metrics for MCSHA, the stakeholders should not be allowed to develop the performance indicators for institutional readiness goals within their own commodities. The Marine Corps Order for Performance Management Planning states “Individual pillar leads shall be assigned with primary responsibility for developing performance indicators.”³² Allowing the pillar leads to establish their own performance indicators would continue the channelization of information that already occurs within the pillars. Without external validation of processes, metrics, and performance indicators, any bias or error established in a pillar could go unnoticed.

Instead of pillar leads to establishing performance indicators for their own institutional readiness goals, HQMC should charter a permanent working group under the leadership of the Deputy Commandant (DC), Plans, Policies, & Operations (PP&O). The working group could not only develop more meaningful performance indicators, but also supervise the annual assessment to ensure the indicators remain relevant as the Marine Corps continues to modernize the force. The working group should include subject matter experts from each Institutional Readiness Pillar, but PP&O is best suited to lead this effort for the Marine Corps, as this division of HQMC is already responsible for readiness reporting to DoD. The working group could minimize or eliminate the channelization of information and provide a holistic validation if performance indicators are realistic and meaningful across all five pillars.

The Marine Corps could also improve institutional readiness goals by streamlining institutional guidance. The Marine Corps has become increasingly encumbered in recent years not only by an influx of new equipment, but also planning and strategy documents. The Marine Operating Concept, the Service Campaign Plan, the Enterprise Integration Plan, and MCSHA are just a few of the new, long-range strategies intended to predict and define strategic ends for the future force. Although publishing multiple strategy documents has the potential to increase focus on important areas, there is also the potential to decrease organizational focus, hinder unity of effort, and disrupt optimal resource allocation. Streamlining strategic planning guidance would be a worthwhile step toward simplifying supporting processes and unifying organizational efforts throughout the Marine Corps' senior leaders.³³

Performance Indicators

The Marine Corps measures two categories of equipment when calculating objective performance indicators of ground equipment readiness; Principal End Items (PEI) and Mission Essential Equipment (MEE).³⁴ The equipment included in these two categories is reviewed and selected annually by supporting commands, applicable HQMC advocates, and the Operational Advisory Groups (OAG).³⁵ Although the overall number of reportable items varies from year-to-year, the PEIs selected must be of sufficient range to provide an adequate measure of overall equipment status and/or capability for Marine Forces. High density items such as rifles and pistols, or items that can be readily replaced by the unit's first source of supply, are not considered for inclusion as a readiness reportable PEI as they could cause gross distortions of equipment status.³⁶ As PEI are selected in the annual review, MEE are established as a subgroup of PEI. For a PEI to be considered MEE, the availability of the equipment item must be

considered essential and indispensable for the execution of the Mission Essential Tasks (MET) of the unit in support of a Combatant Commander.³⁷

The Marine Corps uses logistics information systems and force structure requirements systems as the primary mechanisms for resource management, requirement determination, and equipment availability/condition. Although the information in these systems does not provide a useful assessment of capabilities, they are indispensable in the process of retrieving, integrating and processing authoritative data to support capability assessments. In order to accurately measure ground equipment capability throughout the Marine Corps, data systems must provide data that reflect the measure of an organization's equipment inventory compared to its mission requirements.³⁸ At a fundamental level, the Marine Corps uses unit supply percentages to represent equipment availability and the supply chain's ability to support equipment requirements.³⁹

When calculating the supply percentage, the Table of Equipment (T/E) is the baseline for asset management within the Marine Corps.⁴⁰ The T/E represents the total wartime equipment requirement for each unit in the Marine Corps and is published in the Total Force Structure Management System (TFSMS).⁴¹ Just as TFSMS is the Authoritative Data Source (ADS) identifying what equipment units are authorized, Global Combat Support System - Marine Corps (GCCS-MC) is the ADS identifying the actual quantity of equipment units possess on-hand.⁴² GCCS-MC also identifies equipment that is considered "deadlined," meaning it cannot perform its designated combat mission due to the need for critical repairs and is not mission capable.⁴³

The supply percentage is the ratio between the equipment that is possessed and authorized.⁴⁴ This rating is derived by dividing the quantity possessed for an item, by the quantity authorized for an item on the unit's T/E (i.e. Supply % = Possessed / Authorized).⁴⁵

This formula is applied differently when calculating the supply percentage for multiple or all equipment items in a unit. During a unit “rollup”, excess from one equipment item cannot compensate for a deficiency in another item.⁴⁶ Therefore, the formula used in a unit rollup subtracts excess from the equation (i.e. Supply % = [Possessed – Net Excess] / Authorized).⁴⁷ While subtracting excess equipment is usually insignificant in readiness calculations at the battalion/squadron level, it can significantly hinder readiness calculations in the various levels of higher headquarters as the supply percentage rollup is calculated.

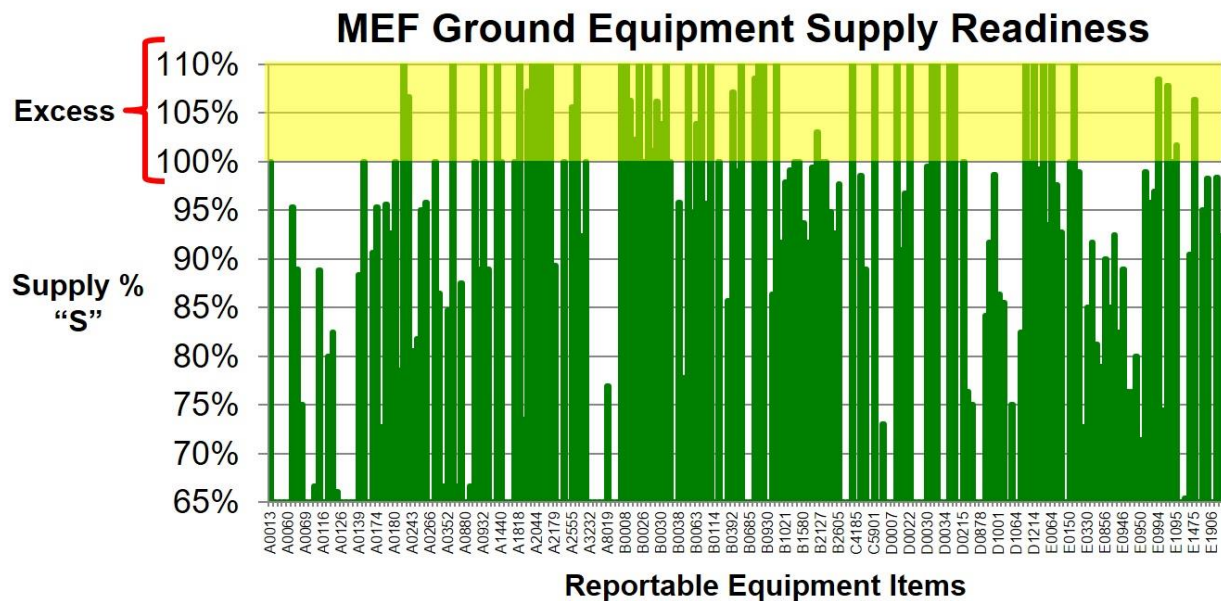
The Marine Corps’ methods for distributing assets and creating task organized units can severely degrade ground equipment readiness, while providing deceptively high supply percentages. Unlike the other services, creating temporary, task organized units is a common occurrence in the Marine Corps. The primary problem for ground equipment readiness when a task organized unit is created is the fact that the Marine Corps does not buy more equipment to create the new unit. The task organized units are built with assets from several units that are still required to report the readiness against the unit’s full T/E. Since the task organized units do not have a T/E, it becomes difficult for the higher headquarters to accurately calculate an equipment supply percentage.

In addition to task organized units, equipment often becomes excess to a unit as a result of equipment distribution. This commonly occurs when battalions are authorized equipment on the T/E, but do not have the mechanics or technicians to maintain the equipment. If the higher headquarters has the maintainers, it does not seem logical to leave the equipment assets in the subordinate unit where it cannot be maintained. Keeping the equipment with the headquarters’ maintainers seems logical, but even if the intent is to return the equipment to the subordinate unit if it needs to deploy, this does meet the Marine Corps’ definition of a ready unit. The equipment

cannot count towards readiness of the subordinate unit because it is not on-hand, and it cannot count towards readiness of the headquarters unit because the unit does not rate the equipment on its T/E.

A ground equipment readiness assessment conducted by HQMC in 2013 indicated around ten percent of the Marine Corps' equipment in the active forces was being counted as excess, which prevents the equipment from contributing to the readiness calculations of any unit.⁴⁸ The assessment showed that supply percentages being used in many of the Marine Corps internal readiness reports included excess in the percentage (i.e., excess equipment for some items was erroneously compensating for shortfalls in other items). The sample Marine Expeditionary Force (MEF) readiness supply percentages depicted in Graph 1 demonstrates how excess equipment can skew readiness reporting.⁴⁹ The X axis in Graph 1 represents the Marine Corps' 215 readiness reportable ground equipment items and the Y axis represents the supply percentage for each item.⁵⁰

Graph 1
HQMC. Analysis of Operational Forces Excess Equipment. Staff Study, 2013.



At the time the analysis was conducted, the MEF rated 43,366 reportable equipment items on its T/E and had 38,766 on-hand.⁵¹ The yellow, highlighted portion of the graph contains the equipment items that are excess and erroneously inflating the MEF's overall supply percentage to 89%.⁵² When the MEF rollup is correctly calculated, removing the 3,162 excess items in the highlighted portion from the equation, the MEF's supply percentage is actually 82%.⁵³ When the HQMC assessment looked one level deeper and analyzed the Major Subordinate Commands (MSC) within the MEF, another 1,718 items were discovered as excess.⁵⁴ After recalculating the MEF's supply percentage to remove these items that were erroneously included in the rollup calculations, the readiness was reduced to 78%.⁵⁵ The assessment did analyze deeper into the regimental/group level, but the presence of excess in many units at the battalion/squadron level indicated that the true MEF supply percentage rollup is even lower.

An important take-away from the HQMC assessment is the fact that some of the equipment shortfalls at the battalion/squadron level could be resolved within the MEF. Starting in 2012, Marine Corps units no longer submit requisition requests for readiness reportable equipment items.⁵⁶ Equipment is now pushed from Marine Corps Logistics Command to each MEF based on validated shortfalls at the MEF level.⁵⁷ This places the full responsibility on the MEF and subordinate commanders to manage equipment distribution to fill unit shortfalls. It also creates the potential that units will report shortfall in one battalion that could be filled by excess from an adjacent battalion. It is important to note this shortfall/excess relationship does not necessarily imply negligence or misalignment of equipment. Unit commanders have a multitude of reasons why equipment is not resident with the unit that rates the equipment on a T/E. This is a key reason HQMC sources equipment to the MEF level and equipment distribution within the MEF is the commander's responsibility.

The primary difficulty in using objective data points, such as the supply percentage, to report readiness is their inability to portray a unit’s capabilities relative to the unit’s mission. In bridging this gap in order to meet Title 10 Readiness reporting responsibilities, DOD established the Defense Readiness Reporting System (DRRS), and each service created a service-specific version of the system. The Marine Corps’ version is designed to provide capability and resource related assessments to meet its service and DOD requirements, while being specifically tailored to meet the organization’s unique requirements.⁵⁸ The system allows reporting organizations to uniformly determine and accurately report the unit’s ability to accomplish its wartime mission for which the organization was designed and provided a core mission capability assessment.⁵⁹

At the battalion level, the PEI and MEE supply percentages are the primary contributors to the DRRS “S-rating”, which is the DOD metric for comparing an organization's possessed equipment quantity against its designed requirement (i.e. T/E).⁶⁰ The S-rating for PEI and MEE are evaluated independently and the unit registers the lower of the two in DRRS as S1, S2, S3, or S4 in Table 1.⁶¹ Although based on supply percentages, the S-rating differs in that it is intended to more generally reflect the unit's ability to provide the equipment to accomplish its missions in terms that are universal in DOD reporting.⁶² S-ratings are also commonly used as part of the conditions for a unit’s METs.⁶³

Table 1
Marine Corps Readiness Reporting Standard Operating Procedures, MCO 3000.13, 2010.

Rule	S1	S2	S3	S4
1. Mission Essential Equipment (MEE): Total Service-selected mission-essential equipment possessed divided by prescribed wartime requirements (i.e. T/E).	>90%	80-89%	65-79%	<65%
2. Support Equipment (PEI): Total Service-selected principal end-items possessed divided by prescribed wartime requirement (i.e. T/E).	>90%	80-89%	65-79%	<65%

Intermediate commands (e.g. regiment and division level), select an S-rating based on a subjective assessment that is intended to include an evaluation of excess equipment in the subordinate units. If the battalions are reporting correctly, the excess items are not included in the unit's S-rating, but will be discussed in the report's remarks.⁶⁴ It is also important that intermediate commands ensure equipment is only counted as on-hand by one organization at a time.⁶⁵ Due to the proximity of many units transferring equipment for temporary use, units often consider items as on-hand if the item is scheduled to return or if the unit could recall the item if needed. Although logical, this form of thinking often leads to equipment being double-counted, which leads to artificial inflation of unit S-ratings. This is especially important for low density MEE items, which can number less than ten in an entire division.

“The most significant aspect of readiness reporting is the requirement for Commanders to assess their organizations' capabilities to accomplish their METs to specified conditions and standards.”⁶⁶ Once a commander has validated the readiness of individual METs, the unit's capabilities are assessed relative to accomplishing the unit's missions.⁶⁷ Due to the subjective nature of these assessments, it is important for units to coordinate readiness issues with higher, supported, and supporting commands to ensure a shared understanding of unit capabilities and any additional support requirements.⁶⁸ The Marine Corps establishes METs to represent events that units must be able to proficiently accomplish, which will contribute to the unit's ability to accomplish its wartime mission. Subsequently, all of the Marine Corps' readiness reporting units in DRRS have a mission essential task list (METL). Battalion and intermediate command assessments compare available resources to the training standards within METs, which assist the commander in determining the organization's ability to execute core and assigned missions.⁶⁹ The Marine Corps' METs are architecturally linked to the Universal Joint Task List (UJTL),

which allows reporting in DRRS-MC to directly contribute to a readiness assessment at the operational and strategic levels of war planning used by joint task forces and Combatant Commanders.⁷⁰

The primary METs developed for each reporting unit, known as Core METs, define the designed capabilities of a unit and are developed by selecting established tasks from the Marine Corps Task List (MCTL).⁷¹ Core METs are standardized by type for all units and are designed to reflect the events that gauge readiness against the performance of a task common to all units of that type. The equipment standards for Core METs are developed by the DC, Combat Development and Integration (CD&I), Total Force Structure Division, and can be found within the Service organizational MET database.⁷² Policy dictates “Units without approved Core METs will establish their own (with conditions and standards), based on established doctrine, METLs of similar units, higher headquarters' METLs, and Marine Corps publications.”⁷³ As the Marine Corps continues to modernize the force and unit equipment sets continually evolve, it is increasingly difficult to maintain current, relevant equipment standards for METs.

Proposed Changes to Performance Indicators

Similar to the establishment of performance indicators, units should not be allowed to establish their own Core METs. Despite the best of intentions, many units face personnel challenges and have difficulty maintaining the basic need for a DRRS subject matter expert who understands the intricacies of the system. Expecting units to establish their own Core METs is unrealistic and offers little chance of producing meaningful assessments of capability. Due to the similarities between developing the previously discussed performance indicators and developing METs, the HQMC working group proposed to develop performance indicators would also be a better option for developing METs. CD&I advocates would need to be fully engaged to

ensure capabilities are appropriately linked to equipment standards for Core METs, but the overall leadership of the group should reside with PP&O, which has responsibility for management and execution of DRRS-MC.

Although policy has created some linkages in the process, there is a distinct gap between the objective process of managing supply percentages and the subjective process of matching unit capabilities to unit METs to create a ready unit in DRRS-MC. Understanding and tracking the impact of task organization, excess, and equipment distribution to equipment readiness is a difficult task that does not translate well into DRRS readiness reporting. This gap can be bridged by technology, but there is currently no system to show the impact of excess on supply percentage rollup in the various levels of command (e.g., battalion, regiment, division, MEF). HQMC has made significant efforts in recent years with the development of information tools like the Total Life Cycle Management – Operational Support Tool (TLCM-OST). This system, and others like it, are making great advances to allow leaders to easily identify waste and inefficiency within the complex pipeline that starts with program development/funding and ends with tactical employment of capabilities in the operational forces. These information systems still need valid data and updated policy to close the gaps that currently exist between requirements determination, procurement, and distribution of equipment. It is imperative that the Marine Corps continues supporting these efforts in order to maximize efficiency and accurately report the operational readiness of its forces.

Authoritative Data Sources

When discussing ADS that contribute to ground equipment readiness, the Marine Corps now has three primary systems. As previously discussed, TFSMS identifies equipment types and quantities units are authorized, GCSS-MC contains equipment quantities units possess on-hand,

and DRRS-MC contains the official unit readiness reports approved by unit commanders.⁷⁴ An ADS is a “recognized or official data production source with a designated mission statement or source/product to publish reliable and accurate data for subsequent use by customers.”⁷⁵ An ADS can also be a functional combination of multiple data sources.⁷⁶ TFSMS and GCSS-MC, for instance, are primary data sources providing original data, where DRRS-MC data is almost entirely consolidated from other sources.

The Marine Corps began establishing logistics ADS with multiple “legacy” logistics automated computer systems that were developed as stand-alone, independent systems.⁷⁷ The initial logistics systems the Marine Corps developed as ADS were the Asset Tracking for Logistics and Supply System (ATLASS), Supported Activities Supply System (SASSY), Marine Corps Integrated Maintenance Management System (MIMMS), Automated Manifest System – Tactical (AMS-TAC), TFMSS and multiple Marine Air Ground Task Force (MAGTF) Logistics Support Systems (MLS2).⁷⁸ These systems were not only service specific, providing no support or interaction with the joint force, but they also had no ability to interact with each other. Each system was planned, designed, and built by different groups of subject matter experts to meet a specific need. The Marine Corps’ began transitioning away from this environment of stand-alone, stove-piped information systems to a net-centric information sharing environment in June 2011 with the initial release of GCSS-MC.⁷⁹ GCSS-MC utilized a Commercial off the Shelf (COTS) product, the Oracle E-Business suite, to replace the legacy systems ATLASS, SASSY and MIMMS. GCSS-MC established a starting point to address several key shortfalls impacting the logistics community.⁸⁰ GCSS-MC is now the technology hub for logistics modernization in the Marine Corps; providing accurate, near real time logistics information,

enterprise-wide visibility of logistics data, and enabling leaders to make informed logistics decisions in-stride with the operational tempo.⁸¹

When GCSS-MC was released in 2011, however, the Marine Corps still lacked policy and procedures for data management for the logistics commodities providing the system's data. It wasn't until the summer of 2012 the Marine Corps began developing an effective, net-centric data strategy in the release of Marine Corps Bulletin 4430, which provided guidance to improve interoperability among information systems.⁸² In addition to improving equipment accountability, visibility, and logistics data exchange, the bulletin also provided guidance for the development of sharing, controlling redundancy, minimizing data handling, and improving the integrity of logistics data.⁸³ Since it is unlikely the Marine Corps will have the resources to replace the remaining legacy systems, it is very important to develop the ability to migrate and exchange data from legacy systems within a net-centric information sharing environment in a way that supports business processes and decision making.⁸⁴ The Marine Corps still needs to reduce the cost and time required to transform, translate, or research the meaning of data elements, while several of the logistics ADS still contain differently named data elements that are otherwise identical.⁸⁵

Within the Marine Corps' guidance on data management, data quality refers to the accuracy with which data reflects reality, and the consistency of data elements from one system to the next.⁸⁶ Data quality is a primary requirement for any data governance program and is one of the core enabling requirements for Master Data Management and Customer Data Integration Marine Corps.⁸⁷ The DC, Installations and Logistics (I&L) is responsible for ensuring data quality within logistics systems, defining what the data represents, and establishing timeliness requirements.⁸⁸ Similarly, the DC CD&I is independently responsible for data quality within

TFSMS, which creates a duplication of effort in which each DC must create a data quality program. Even at the lowest level, between these two primary ADS, there is no established standard for verifying quality of data contributing to readiness reporting.

Maintaining data quality in DRRS poses a more significant challenge and is a growing concern within the Marine Corps. For DRRS reports, the responsibility to “develop an audit program to periodically check readiness reports for accuracy” is the responsibility of “reporting organizations at all levels”.⁸⁹ This poses a data quality concern that is unique to DRRS as commanders at every level could have different standards for readiness reporting. Some commanders primarily view DRRS reports as a graded event and focus more on reporting unit strengths. Other commanders focus reports on highlighting unit deficiencies in the belief that DRRS reports contribute to equipment distribution or procurement. In either case, DRRS is designed to provide the means for a commander to complete the DOD requirement to provide his or her personal assessment of the unit’s readiness. Marine Corps’ policy reinforces the authority of each individual commander’s assessment as headquarters are not authorized to change a subordinate unit’s DRRS report, except to correct administrative errors or computation errors.⁹⁰

These differences in unit reports are also a concern outside the Marine Corps, as a 2011 U.S. Government Accountability Office (GAO) audit discovered inconsistencies in how units report resource data, including equipment availability and capability assessments.⁹¹ Additionally, Marine Corps Readiness Branch officials told the GAO audit team “that while equipment numbers are automatically populated into DRRS-Marine Corps, some units have adjusted the equipment data so that it does not match the ADS.”⁹² In 2015, over half of non-deployed units reported unacceptable levels of readiness, which accounted for roughly forty-two percent of the total USMC force.⁹³ This can partially be explained by the established priorities to

fully source deploying units at the expense of non-deployed units, but the shortfalls in DRRS data quality make it very difficult to determine the true cause.

Proposed changes to ADS

The best solution to remedy problems in readiness reporting and improve data quality throughout the Marine Corps is to build structure in the Command, Control, Communications, Computers (C4) branch of HQMC to supervise development and maintenance of ADS and information systems. Even with the huge financial investment to develop GCSS-MC, it is only one of the programs needed to resolve the problems created as the Marine Corps crawled into the digital age and created several logistical information systems with no interoperability. It is unrealistic to expect to maintain consistent data quality throughout the service, when the DCs are independently responsible for developing programs and procedures to accomplish that task. C4 is currently responsible for oversight, governance, and policy of the service's information technology infrastructure and is ideally suited to assume responsibility to support commodity specific ADS. Although this will require additional structure in C4's manpower, it would eliminate the duplication of effort that currently exists.

Conclusion

In closing, the Marine Corps should work to refine institutional readiness goals, performance indicators, and policy for verifying data integrity in order to provide reliable and relevant information for the Current Unit Readiness pillar of MCSHA. The first step to improve readiness information is establishing a working group under the leadership of the DC PP&O to develop the performance indicators for institutional readiness goals. The current policy allowing stakeholders to develop metrics of success within their own commodities prevents establishment of a service-wide understanding of readiness. If chartered as a permanent establishment in

HQMC, the working group could develop more meaningful performance indicators, and ensure the annual assessment remains relevant as the service continues to modernize the force. This working group would also be ideal to develop Core METs, rather than units establishing their own. In addition to the concept of standardization, which is needed for performance indicators and METS, the working group would also provide more qualified subject matter experts to contribute to the efforts. When left to the individual unit, personnel shortfalls and training challenges often hinder the quality of input and detract from consistency across the service.

The Marine Corps also needs to streamline institutional guidance, refine data management policy, and improve personnel support of service's information systems. Multiple planning and strategy documents have been published in recent years, which potentially decrease organizational focus, hinder unity of effort, and disrupt optimal resource allocation. The service could benefit from streamlined strategic planning guidance that simplifies supporting processes, clarifies the service vision, and unifies the efforts of senior leaders. More specifically regarding data management, the Marine Corps should establish updated policies to address the current gaps between requirements determination, procurement, and distribution of equipment. The service will not be able to efficiently or accurately report the operational readiness of its forces until these essential policy shortfalls are resolved throughout the organization. Finally, the Marine Corps should build structure in C4 to supervise development of ADS and information systems. Many of the service's problems in readiness reporting and data quality are symptoms of the legacy ADS that were developed in isolation as stand-alone programs.

Notes

¹ Commandant of the Marine Corps, Program Management Planning, MCO 5230.23, August 20, 2014: 2-3. <http://www.marines.mil/Portals/59/Publications/MCO%205230.23.pdf>

² Ibid., 2.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Readiness Reporting System, 10 U.S.C. §117.

<http://uscode.house.gov/browse/prelim@title10/subtitleA/part1/chapter2&edition=prelim>

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ Headquarters, United States Marine Corps, *Marine Corps Operating Concept*, September 2016: i. http://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/EF21/EF21_USMC_Capstone_Concept.pdf

¹¹ Ibid., 7.

¹² Ibid., 16.

¹³ Ibid., 12.

¹⁴ Ibid.

¹⁵ Ibid., 16.

¹⁶ Commandant of the Marine Corps, *Program Management Planning*, MCO 5230.23: 2.

¹⁷ Ibid.

¹⁸ Ibid., 3.

¹⁹ Ibid., 2.

²⁰ Todd Harrison, “Rethinking Readiness,” Center for Strategic and Budgetary Assessments, (August 29, 2014): <http://www.csbaonline.org/publications/2014/08/rethinking-readiness/>

²¹ Ibid.

²² Ibid.

²³ Richard Hicks, “The Readiness Challenge,” *The Marine Corps Gazette*, Aug 10, 2015.

<https://www.mca-marines.org/gazette/blog/2015/08/10/readiness-challenge>

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

³² Commandant of the Marine Corps, *Program Management Planning*, MCO 5230.23.

³³ Richard Hicks, “The Readiness Challenge.”

³⁴ Commandant of the Marine Corps, *Ground Equipment Condition and Supply Materiel Readiness Reporting (MRR) Policy*, MCO 3000.11E, April 5, 2012: 3. <http://www.marines.mil/Portals/59/MCO%203000.11E.pdf>

³⁵ Ibid.

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- 36 Ibid.
- 37 Ibid.
- 38 Ibid., 2.
- 39 Ibid.
- 40 Ibid., Enclosure 1.
- 41 Ibid.
- 42 Ibid., 6.
- 43 Ibid., 3.
- 44 Ibid., Enclosure 1.
- 45 Ibid.
- 46 Ibid.
- 47 Ibid.
- 48 Headquarters, United States Marine Corps, *Analysis of Operational Forces Excess Equipment*, Staff Study, 2013.
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- 50 Ibid.
- 51 Ibid.
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- 54 Ibid.
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- 56 Commandant of the Marine Corps, *Equipment Accountability and Visibility: Class VII Principal End Item Management*, MARADMIN 363/12, July 9, 2012. <http://www.marines.mil/News/Messages/Messages-Display/Article/887405/equipment-accountability-and-visibility-class-vii-principal-end-item-management/>
- 57 Ibid.
- 58 Commandant of the Marine Corps, *Marine Corps Readiness Reporting Standard Operating Procedures (SOP)*, MCO 3000.13, July 30, 2010: 2. <http://www.marines.mil/Portals/59/Publications/MCO%203000.13.pdf>
- 59 Ibid., 1-2.
- 60 Ibid., 3-1.
- 61 Ibid., 3-2.
- 62 Ibid.
- 63 Ibid.
- 64 Ibid., 3-3.
- 65 Ibid.
- 66 Ibid., 1-3.
- 67 Ibid., 4-1.
- 68 Ibid.
- 69 Ibid.
- 70 Ibid.
- 71 Ibid., 4-2.
- 72 Ibid.
- 73 Ibid.
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⁷⁵ Commandant of the Marine Corps, *Marine Corps Data Strategy*, MCO 5231.3, April 7, 2009: 2-1. <http://www.marines.mil/Portals/59/Publications/MCO%205231.3.pdf?ver=2012-10-11-163831-893>

⁷⁶ Ibid.

⁷⁷ Commandant of the Marine Corps, *Equipment Accountability and Visibility Policy; Critical Logistics Data*, MCBul 4430, June 27, 2012. <http://www.marines.mil/Portals/59/Publications/MCBUL%204430%20DTD%2027JUN12.pdf>

⁷⁸ Ibid.

⁷⁹ Commandant of the Marine Corps, *Global Combat Support System – Marine Corps (GCSS-MC) Increment 1 Capability Release 1 Announcement of III MEF Full Operational Capability and Initiation of Legacy System Sunset*, MARADMIN 503/11, September 1, 2011. <http://www.marines.mil/News/Messages/Messages-Display/Article/887979/global-combat-support-system-marine-corps-gcss-mc-increment-1-capability-releas/>

⁸⁰ U.S. Marine Corps Concept and Programs, *Global Combat Support System - Marine Corps*, Last modified April 13, 2015, <https://www.marinecorpsconceptsandprograms.com/programs/command-and-controlsituational-awareness-c2sa/global-combat-support-system-marine-corps>

⁸¹ Ibid.

⁸² Commandant of the Marine Corps, *Equipment Accountability and Visibility Policy; Critical Logistics Data*, MCBul 4430.

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Ibid.

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⁸⁸ Ibid.

⁸⁹ Commandant of the Marine Corps, *Marine Corps Readiness Reporting Standard Operating Procedures (SOP)*, MCO 3000.13.

⁹⁰ Ibid.

⁹¹ U.S. Government Accountability Office, *Military Readiness: Army and Marine Corps Reporting Provides Additional Data, but Actions Needed to Improve Consistency*, June 2011: 18. <http://www.gao.gov/new.items/d11526.pdf>

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⁹³ The Heritage Foundation, “2016 Index of US Military Strength: U.S. Marine Corps,” 2016. <http://index.heritage.org/military/2016/>

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