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14. ABSTRACT In an effort to identify the key factors that should influence the way the Marine Corps organizes its logistics forces for the next conflict, this paper examines key structural changes to logistics forces over the past 100 years and the factors that influenced those changes. First, this paper demonstrates how logistical failures at the outset of World War II led the Marine Corps to transfer logistics capabilities away from the Marine Division to absolve combat units of the burden for logistics planning while ensuring that essential logistics actions were not neglected. Second, outlines how the drove the Marine Corps to establish a logistics regiment independent of Division as the Logistics Combat Element (LCE) to support the newly conceived Marine Air Ground Task Force (MAGTF) following the Korean War. Third, it details how the LCE had to be completely restructured in preparation for OIF I because the organization was not structured with its					
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MASTER OF MILITARY STUDIES

TITLE:

**A LOGISTICAL IDENTITY CRISIS: LOOKING TO THE PAST TO STRUCTURE
FOR THE FUTURE**

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

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EXECUTIVE SUMMARY

Title: A Logistical Identity Crisis: Looking to the Past to Structure for the Future

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Thesis: The lessons learned that drove structural changes within the Marine Corps' logistics community during World War II, after the Korean War, and during Operation Iraqi Freedom I highlight the importance of having a structure that insulates combat units from sustainment responsibilities, anticipates the impact of technological advancements on force structure, and supports the organization of forces for combat operations without sacrificing efficiency.

Discussion: The Marine Corps' logistics community has undergone 12 major structural changes over the past 100 years, with five of those changes coming in the past 13 years and another change forthcoming. The most significant of these changes occurred during World War II, following the Korean War, and during Operation Iraqi Freedom I. During World War II, operational and theater-level logistics units were created and logistics capabilities were transferred from the Marine Divisions to those units in order to absolve the Division Staff of the burden of logistics planning. This move was taken a step further after the Korean War when the advent of the helicopter drove the Marine Corps to establish a logistics regiment independent of the Marine Division to support the newly conceived Marine Air Ground Task Force (MAGTF). More than forty years later during Operation Iraqi Freedom I, the Marine Corps restructured the functionally aligned Force Service Support Group (FSSG) and created standing multi-functional logistics units in order to create a structure that better suited its concept of employment. This study seeks to identify the lessons learned that led the Marine Corps to adapt its structure in each of these cases and to ensure those lessons learned are applied to today's logistics structure.

Conclusion: Past structural changes within the Marine Corps' logistics community were the result of the desire to absolve combat units of the responsibility for sustainment actions, the impact of technological advancements on force employment, and necessity to organize forces for combat operations without sacrificing efficiency. The current structure accounts for the lessons learned during previous conflicts and achieves the best possible balance between efficient allocation of logistics capabilities and the effective application of those capabilities. Thus, the current logistics structure should not be changed. Instead, the logistics community should learn to effectively employ the structure it has by rehearsing the process of rapidly task-organizing functional capability sets under small, mobile, multi-functional units in order to make them proficient and responsive enough to respond to the next conflict.

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THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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PREFACE

I have lived through four restructurings of the logistics community during my first eight years of service and a fifth restructuring is impending. While I recognize that change is natural, experiencing so many changes so rapidly led me to wonder if we were repeating past mistakes. This concern motivated me to research ways the logistics community has been structured in the past, the impetus for the changes that have occurred, and the advantages and disadvantages of each structure. My hope in researching past structural organizations was to gain a greater understanding of the strengths and weaknesses of the current structure of the Marine Corps' logistics forces while gaining insight into the most advantageous way to structure logistics forces in the future.

I would like to thank my Master of Military Studies (MMS) mentors, Dr. Packard and LtCol McHale for their mentorship and support in undertaking this project and my military and civilian faculty instructors LtCol Bruoeygard, LtCol Byrne, Dr. Strauss, and Dr. Jensen. Additionally, I would like to thank Clay and Dakota for their support and understanding this year.

INTRODUCTION

Over the course of the past 100 years, the structure and composition of Marine Corps' combat arms units has remained relatively unchanged. Like today's combat arms units, World War II Infantry Regiments consisted of a Headquarters Company and three Infantry Battalions and World War II Infantry Battalions consisted of a Headquarters and Service Company, a Weapons Company, and three Rifle Companies. There have been increases in the number of battalions and regiments as the size of the Marine Corps fluctuated and changes to the equipment that those units wielded as technology advanced, but the composition of the Marine Corps' infantry battalions and regiments has remained fairly consistent.¹ Conversely, the Marine Corps' logistics community seems to have had an identity crisis. The community has undergone 12 major structural changes over the past century, with five of those changes coming in the past 13 years and another change forthcoming. The frequency with which the structure of logistics units has changed is a product of a community that does not know its history. As the Marine Corps seeks to identify the best structure for its logistics community in the next conflict, key lessons learned from the past must be taken into consideration in order to avoid repeating past mistakes. The lessons learned that drove structural changes within the Marine Corps' logistics community during World War II, after the Korean War, and during Operation Iraqi Freedom (OIF) I highlight the importance of creating a structure that insulates combat units from sustainment responsibilities, anticipates the impact of technological advancements on force structure, and supports the organization of forces for combat operations without sacrificing efficiency.

¹ Gordon L. Rottman, *US Marine Corps World War II Order of Battle* (Westport, CN: Greenwood Press, 2002), 114 and 119.

In an effort to identify the key factors that should influence the way the Marine Corps organizes its logistics forces for the next conflict, this paper will examine key structural changes to logistics forces over the past 100 years and the factors that influenced those changes. First, this paper will demonstrate how logistical failures at the outset of World War II led the Marine Corps to transfer logistics capabilities away from the Marine Division to absolve combat units of the burden for logistics planning while ensuring that essential logistics actions were not neglected. Second, it will outline how the advent of the helicopter during the Korean War drove the Marine Corps to establish a logistics regiment independent of Division as the Logistics Combat Element (LCE) to support the newly conceived Marine Air Ground Task Force (MAGTF). Third, it will detail how that LCE had to be completely restructured in preparation for OIF I, because the organization was not structured with its combat mission in mind. This section is considerably longer and more detailed than the previous two because there is more recent data available on the OIF conflict than on the previous conflicts. Finally, the paper will explain why the current logistics structure should not be changed and advocate for learning to effectively employ the current structure instead of instituting additional changes.

WORLD WAR II LOGISTICS

Prior to the start of World War II, the Marine Corps physically possessed very few support personnel and even the theoretical table of organization did not anticipate the requirement for a large logistical footprint. The bulk of logistical capabilities that the Marine Corps did possess were placed within the Marine Divisions with the intent of making them “self-contained amphibious fighting forces well suited for combat on rugged tropical islands.”² However, the Marine Corps’ logistical footprint more than quadrupled during the first year of the war as it grew from the skeleton structure shown in Figure 1 to the robust logistical structure outlined in Figure 2. Between 1940 and 1942, almost 3,000 support personnel, an Amphibious Tractor Battalion with 159 amtracs, two additional Engineer Battalions with associated heavy engineer equipment, and three additional Motor Transportation Companies with associated vehicles, were added to the Division.³ Despite the growth in support personnel, logistics forces remained within the Marine Divisions they supported. Recently, there have been numerous advocates who have argued for returning logistical structure to the Marine Divisions.⁴ However, logistical failures at the outset of World War II demonstrate that the placement of robust logistics capabilities within the Division was a mistake that resulted in the neglect of sustainment functions leading up to and during combat operations and overburdened combat units with sustainment responsibilities.

² Rottman, 113.

³ Ibid, 115-118 and 143-144.

⁴ George D. Camia, “The Marine Logistics Group: How Can It Be Structured and Organized to Succeed in Both Combat and Garrison?” (master’s thesis, Marine Corps Command and Staff College, 2017), 19-20 and Kevin G. Collins, “Rethinking Logistics Organization of the Marine Expeditionary Force: A MAGTF Solution.” (master’s thesis, School of Advanced Military Studies, United States Army Command and General Staff College, 2007), 44-48.

1940 Marine Division Table of Organization

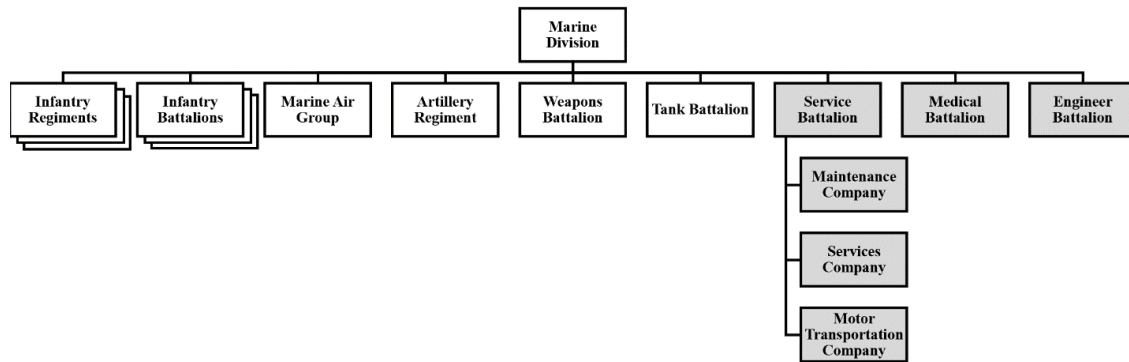


Figure 1. 1940 Marine Division Table of Organization

Source: Gordon L. Rottman, US Marine Corps World War II Order of Battle (Westport, CN: Greenwood Press, 2002): 115.

1 July 1942 Marine Division Structure

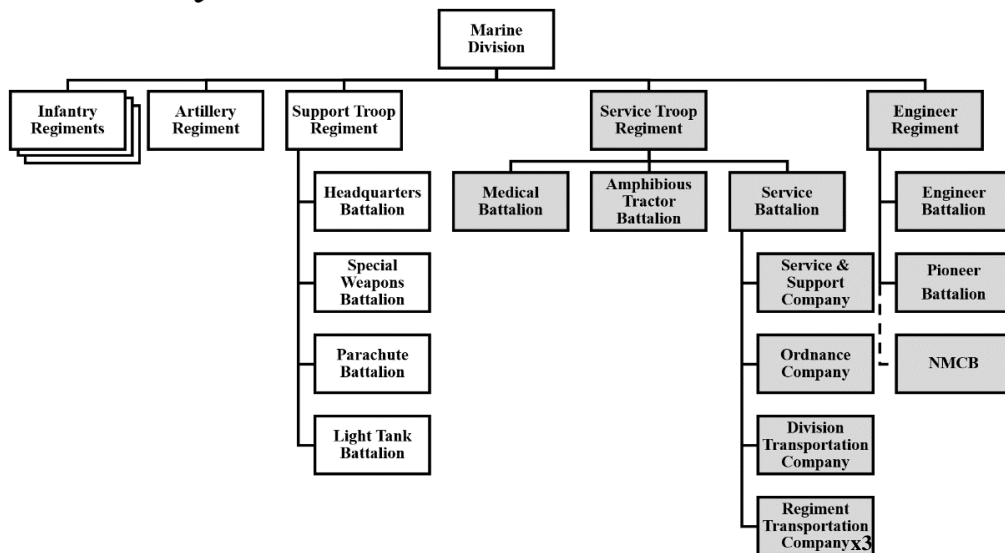


Figure 2. 1 July 1942 Marine Division Structure

Source: Gordon L. Rottman, US Marine Corps World War II Order of Battle (Westport, CN: Greenwood Press, 2002): 116-118.

As the Marine Corps sought to develop its amphibious doctrine during the interwar period, commanders were rightly focused on manning, training, and equipping combat units for the next conflict in order to ensure their units were prepared. However, the intense focus on combat units came at the expense of the units that would be necessary to sustain and support those combat

forces. The placement of logistics units under the Marine Division leading up to and during World War II resulted in the Marine Corps' failure to properly staff and equip logistics units, failure to train to logistical mission sets, and neglect of sustainment functions during combat operations.

Prior to the United States' entry into World War II, the Marine Corps failed to properly staff and equip logistics units for the impending conflict because commanders were focused on fulfilling the needs of combat units. At the outset of World War II, service and support units across the Marine Corps had to be established from scratch since most support units were deactivated or severely understaffed during the interwar period. While all Marine Corps units were under manned and under equipped at the outset of World War II, logistics units were in far worse shape than their combat arms counterparts. When the attacks on Pearl Harbor occurred, the two Marine Divisions, including their support units were manned to sixty percent strength and possessed forty percent of their equipment while support units had almost none of their equipment or personnel. Even the logistics units that were most vital to the success of the Marine Corps' amphibious mission were neglected. As Shore Party Battalions, the logistics units most responsible for transferring equipment and supplies from ship to shore during an amphibious operation were not activated as standing organizations until February of 1942.⁵ The disparity between the manning and equipping of combat arms units and that of even the most vital support units demonstrates that resourcing logistics units was not a priority for Division staffs who were understandably focused on filling the ranks of their combat units.

The Marine Corps' failure to properly resource logistics units leading up to World War II was compounded by its failure to train the forces it did have to complete logistical mission sets.

⁵ Rottman, 87, 112, and 223.

As the Marine Corps developed and tested its new amphibious doctrine during the interwar period, it conducted fourteen amphibious training exercises to refine its procedures and ensure Marines were prepared to execute a complex new mission set. However, the complex logistical tasks associated with amphibious operations were largely neglected until the last of these training exercises were conducted immediately prior to the United States' entry into the war. The Marine Corps failed to conduct a full rehearsal of loading and offloading equipment for combat operations or to exercise shore party capabilities during any of the amphibious training exercises it conducted between 1922 and 1942. In fact, the Shore Party construct was not tested for the first time until the First Joint Training Force Exercise four months prior to the United States' entry into the war. Only after resounding logistical failures during this exercise was formal training established for loading ships and shore party operations in support of amphibious operations.⁶ Unfortunately, this logistical training was implemented too late to impact logistics in support of amphibious operations at the outset of the war.

The focus on combat operations at the expense of sustainment functions was carried from training into combat as the neglect of sustainment functions during combat operations resulted in logistical failures at Guadalcanal. During the amphibious landings at Guadalcanal, equipment and supplies piled up on the island's beaches because the Division's logistics units could not offload and transport supplies inland in an efficient manner.⁷ Unclear roles and responsibilities across the Division's logistics organizations resulted in more than one hundred boats waiting to be offloaded on the beach and fifty more waiting to land during the first twenty-four hours of the operation. The Commander of the Amphibious Task Force at Guadalcanal, Admiral Turner

⁶ Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War* (Princeton: Princeton University Press, 1951), 46-65.

⁷ Gunther E. Rothenberg, "From Gallipoli to Guadalcanal," in *Assault from the Sea: Essays on the History of Amphibious Warfare*, ed. Merrill L. Bartlett (Annapolis: Naval Institute Press, 1983), 180.

attributed the bottleneck of supplies during the operation to the shore party's insufficient staffing and lack of guidance and direction.⁸

The lack of focus by Division Commanders and their staffs on sustainment functions was a product of how rapidly the size and scope of the Division's mission had grown. The placement of logistics units under the Marine Division overburdened commanders and staffs that should have been focused on combat operations with responsibility for sustainment actions. By July 1, 1942, the Marine Division had grown from 3,986 to 19,514 personnel in just a two years with almost a quarter of those personnel fulfilling combat service support functions. This made the Marine Division the largest unit in the United States' armed services. The logistical burden placed on combat commanders was not limited to the Division level. By April of 1943, Infantry Regiments were being reinforced with as many as 1,000 combat service support personnel to execute their assigned missions.⁹ The growth of the Marine Division into such a massive unit with such a robust logistical capability detracted from the ability of Divisions and Regiments to focus on their assigned combat mission.

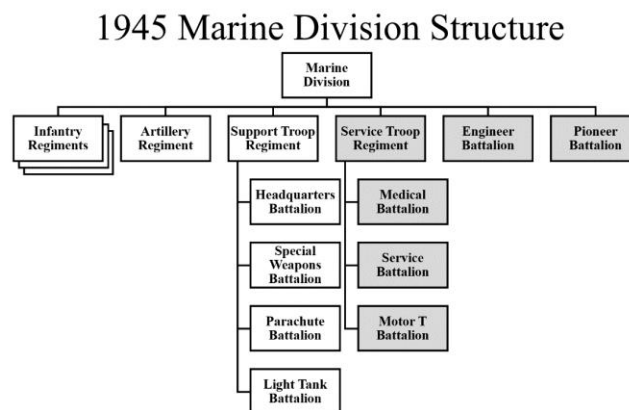


Figure 3. 1945 Marine Division Structure

Source: Gordon L. Rottman, *US Marine Corps World War II Order of Battle* (Westport, CN: Greenwood Press, 2002): 121-127.

⁸ William L McGee, ed. and Sandra McGee, ed., *Pacific Express: The Critical Role of Military Logistics in World War II*, vol. 3. (Tiburon, California: BMC Publications, 2009), 444-446.

⁹ Rottman, 113,116-118, and 164.

In the wake of Guadalcanal, the logistics capabilities organic to the Marine Divisions were slowly reduced and logistics capabilities outside of the Division slowly increased in order to absolve combat commanders of responsibility for many of the complex logistical tasks that were not directly related to the success of their assigned combat mission. As shown in Figure 3, the number of personnel performing combat service support functions within the Division had been reduced by twenty-five between 1942 and 1945. As the logistical footprint within the Marine Divisions shrunk, there was a corresponding growth in logistics capabilities outside of the Division. On October 1, 1942 I Marine Amphibious Corps (IMAC) was activated and Corps-level logistics capabilities were transferred to IMAC's Corps Troops Regiment. By 1943, IMAC had motor transportation, medical, engineer, supply, and service battalions to provide overflow logistics support to the Divisions operating in the Pacific. Additionally, seven Field and Base Depots were activated between 1942 and 1945 with as many as 4,000 personnel each performing theater level logistics functions in support of Marine Corps units.¹⁰ The establishment of operational and theater level logistics units along with the gradual transfer of logistics capabilities out of the Marine Divisions during World War II, demonstrates the recognition that robust logistical capabilities should not be placed within the combat units they are tasked to support.

The placement of robust logistical capabilities within the Marine Division resulted in the neglect of sustainment functions leading up to and during combat operations and overburdened combat units with sustainment responsibilities. The resulting logistical failures at the outset of the war in the Pacific led the Marine Corps to establish operational and theater level logistics organizations outside of the Marine Division and to transfer logistics capabilities from the

¹⁰ Ibid, 108-109, 125-127, and 243-244.

Divisions to those organizations. The lack of advocacy for logistics units leading up to conflict, the neglect of sustainment functions during the conflict, and the burden that those units placed on the units they were supposed to support demonstrates why robust logistical capabilities should be maintained outside of the units they are tasked to support.

KOREAN WAR LOGISTICS

Despite the lessons learned during World War II, when the Korean War began, logistics units were once again attached to the Divisions they supported. As outlined in Figure 4, the Division's organic logistics capabilities resided within the Service Troop Regiment while additional logistics capabilities were attached within the Combat Service Support Group. Consequently, the Marine Aircraft Wing (MAW) possessed no organic ground logistics capabilities and was dependent upon the Division's logistics capabilities for sustainment.¹¹ However, during the Korean War, the mass introduction of helicopters led the MAW to take on a more prominent role in combat operations further inland than it had in previous conflicts. The changing role of the MAW necessitated a level of ground support that had not been necessary in previous conflicts. As a result, the Marine Air Ground Task Force (MAGTF) construct was created with a separate Logistics Combat Element (LCE) to support both aviation and ground units.¹² Thus, the Korean War demonstrates how technological advancements can completely alter the structural alignment of military forces. Just as the introduction of helicopters in Korea gave birth to the MAGTF construct, improved adversary targeting capabilities necessitate new structural alignment for the operational employment of today's logistics forces and the development of additive manufacturing and unmanned logistics platforms has begun to make the necessary change possible.

¹¹ Ronald J. Brown, "Counteroffensive: U.S. Marines from Pohang to No Name Line." in *U.S. Marines in the Korean War*, 343-412. (Washington, DC: History Division, United States Marine Corps, 2007), 375 and 406.

¹² Hogaboom Report. *Report of the Fleet Marine Force Organization and Composition Board*. Archives and Special Collections Branch, Library of the Marine Corps, VII-35, VII-180, and VII-371.

Korean War FMF Structure

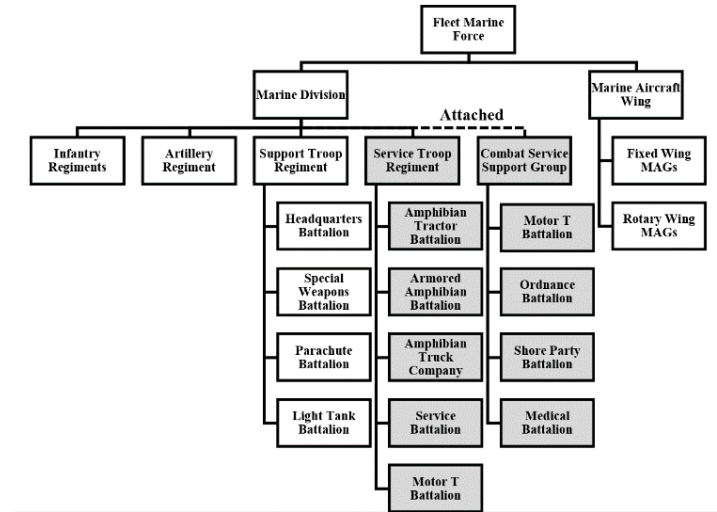


Figure 4. Korean War FMF Structure

Source: Ronald J. Brown, “Counteroffensive: U.S. Marines from Pohang to No Name Line.” In *U.S. Marines in the Korean War*, 343-412. Washington, DC: History Division, United States Marine Corps, 2007.

The rise of the helicopter during the Korean War led the Marine Aircraft Wing to take on a more prominent role in ground combat operations from expeditionary airfields ashore.¹³ The Marine Corps’ first helicopter Squadron was formed in 1947. That same unit formed the nucleus for Marine Observation Squadron 6 (VMO-6) which deployed to Korea in 1950. The Marine Corps’ first employment of helicopters in combat was extremely effective in a variety of roles.¹⁴ The platform proved most effective in performing casualty evacuation, troop transport, and aerial resupply missions.

The use of the helicopter as a casualty evacuation platform negated the requirement to locate robust medical capabilities with Division near front line troops in order to save lives. As a casualty evacuation platform, the helicopter facilitated the rapid transportation of wounded

¹³ Ibid, 387-388.

¹⁴ William W. Suit, “U.S. Air Force Korean Logistics.” in *Coalition Air Warfare in the Korean War 1950–1953*, ed. Jacob Neufeld and George M. Watson, Jr. (Washington, DC: U.S. Government Printing Office, 2005), 269-291.

Marines from the front lines to medical treatment facilities miles away within minutes rather than hours or days. The first such evacuation occurred on 23 April 1951 when fifty critically wounded Marines were evacuated to medical treatment facilities using helicopters over the course of a thirteen and a half hour period.¹⁵ The Commanding Officer of the first helicopter squadron in Korea, Maj. Victor J. Gottschalk, reported that the use of helicopters to evacuate casualties to hospitals within ten to fifteen minutes was “credited directly by the Division Surgeon with saving the lives of scores of wounded.”¹⁶ Throughout the war, the use of helicopters for casualty evacuation became standard practice. This development not only ensured that critically wounded Marines received medical treatment more expediently, it altered the positioning of medical capabilities across the battlefield. The ability of helicopters to transport casualties rapidly over long distances meant that the robust medical capabilities provided by the Division’s Medical Battalion were no longer required to be located immediately behind the front lines in order to save the lives of critically wounded Marines. Consequently, in the wake of the Korean War, the two Hospital Companies within Division’s Medical Battalion were removed because helicopters were expected to rapidly evacuate casualties to hospital ships or more permanent medical facilities.¹⁷

In addition to becoming the primary casualty evacuation platform, the helicopter became a sought after troop transport and aerial resupply asset during the Korean War. On 13 September 1951, the first major resupply by helicopter was conducted during Operation Windmill when First Marine Regiment was cut off from ground resupply by mountainous terrain and impassable

¹⁵ Brown, 387-388 and 406.

¹⁶ James A. Ginther, “Testing Vertical Envelopment in the Skies over Korea.” in *Coalition Air Warfare in the Korean War 1950–1953*, ed. Jacob Neufeld and George M. Watson, Jr. (Washington, DC: U.S. Government Printing Office, 2005), 291.

¹⁷ “FMF Organization and Composition Board Report: Service Elements.” *Marine Corps Gazette*, July 1957, 23.

roads. Over the course of three hours, helicopters were used to resupply the regiment with 18,848 pounds worth of supplies that sustained the momentum of First Marine Division's advance. A short time later, the same helicopter squadron proved equally effective at transporting troops when it conducted the first large-scale troop transport during Operation Summit. When the First Marine Division was tasked to replace a Republic of Korea (ROK) unit, the squadron air lifted a company of 224 combat loaded troops over the course of four hours rather than forcing the company to hike nine miles to their new position under the threat of enemy attack. The helicopter proved so effective at transporting troops and supplies, that many commanders feared it would simply become a "flying truck" rather than an instrument of vertical envelopment.¹⁸

The success of the helicopter as a casualty evacuation, troop transport, and aerial resupply platform required helicopters to be based near the units they supported and necessitated refueling capabilities ashore. By July of 1953, there were thirty operational airfields across Korea and the Marine Aircraft Wing was making extensive use of those airfields.¹⁹ This wide dispersion of expeditionary airfields so far inland from sea lines of communications coupled with the absence of a logistics capability outside of the Division made sustaining the distributed Wing units extremely challenging. The Wing experienced notable shortfalls in engineers to repair airfields and keep them in an operational status and fuel trucks and pumps to distribute fuel to inland airfields to keep aircraft flying. The Marine Aircraft Wing had to rely upon Army, Navy, Airforce, and Korean labor forces to supplement their lack of logistics capabilities. The logistical problems experienced by Wing units were attributed to the absence of a centralized

¹⁸ Suit, 293-301.

¹⁹ Ibid, 269.

logistics agency to link theater level sustainment agencies with tactical sustainment of both aviation and ground forces.²⁰

Following the Korean War, the Marine Corps convened the Marine Corps Organization and Composition Board to recommend changes to the way the Marine Corps was organized. The board found that the placement of the FMF's logistics forces within the Division placed excessive burden on Division Commanders, made Division units less mobile and flexible, and detracted from the support provided to aviation units. In order to address these problems, the board recommended creating logistics units within the Wing for requirements that were unique to the aviation community while establishing a separate FMF-level logistics unit to provide support that was common to both ground and aviation units. The board went on to recommend removing logistics capabilities from the Division that were not habitually required for organic support and placing them in a logistics organization capable of providing supply, services, and maintenance support to task-organized air and ground units.²¹ As a result of the board's recommendations, Marine Wing Service Groups were formed to provide organic support to the MAW, logistics capabilities within the Division were reduced, and the Force Service Regiments were activated as adjacent units to the Wing and Division as shown in Figure 5.²² This shift to a Ground Combat Element (GCE), an Aviation Combat Element (ACE), and a Logistics Combat Element (LCE) formed the baseline for the MAGTF as it appears today.

²⁰ Brown, 404-409.

²¹ "FMF Organization and Composition Board Report: Service Elements.", 20-21.

²² Hogaboom Report, VII-35, VII-180, and VII-371.

Post-Korean War Structure

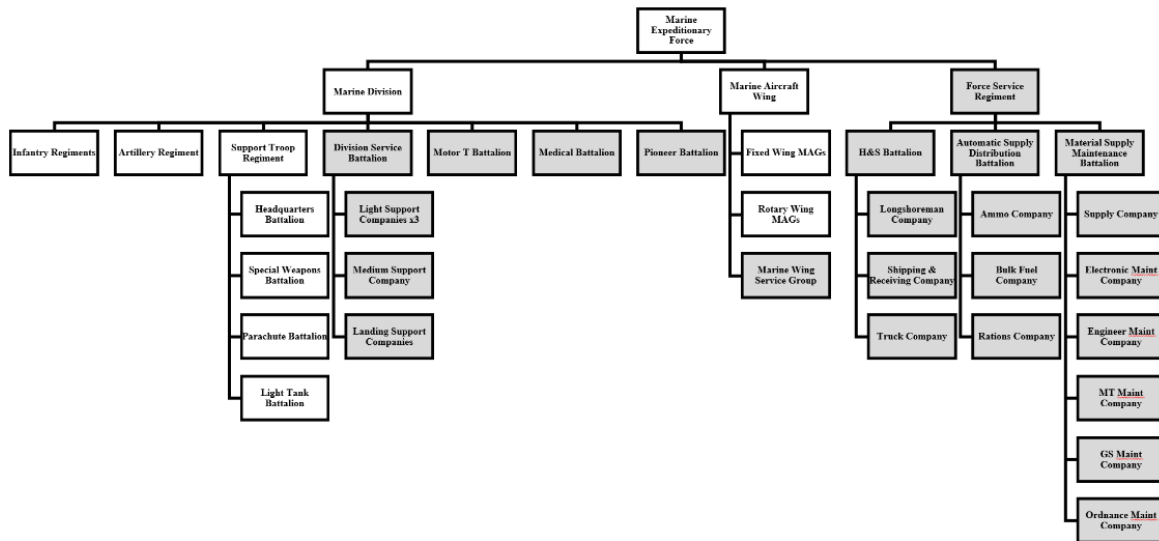


Figure 5. Post-Korean War Structure

Source: Hogaboom Report. *Report of the Fleet Marine Force Organization and Composition Board*. Archives and Special Collections Branch, Library of the Marine Corps.

Both friendly and enemy technological advancements have the ability to drive organizational changes. In the same way that the mass introduction of the helicopter during the Korean War drove the Marine Corps to adopt the MAGTF structure, the recent rise of adversary capabilities will shape the Marine Corps’ organization in the future. Specifically, the advancement of Chinese and Russian targeting capabilities makes the massing of logistics capabilities infeasible and necessitates the use of smaller, more mobile, multi-functional logistics organizations capable of operating independently across a distributed battlefield. The *2018 National Defense Strategy* highlights long-term strategic competition with China and Russia as its first priority.²³ The Marine Operating Concept (MOC) highlights the need for units conducting operations against these types of peer or near-peer adversaries to distribute forces in order to impede the enemy’s

²³ US Department of Defense. *Summary of the 2018 National Defense Strategy of the United States of America*. Washington, DC: Office of the Secretary of Defense, 4.

ability to target them with massed fires. The MOC goes on to highlight the need to redesign the logistics support system to facilitate the provision of support across a distributed and contested battlespace.²⁴ In examining the tactics and capabilities of these states, it becomes clear that massing logistics capabilities to create supply warehouses, maintenance facilities, or fuel farms will not be feasible in the future as a result of the states' ability to locate and target units that remain stationary.

Russia's ability to target large, stationary, logistics nodes with indirect fires from long distances necessitates the development of smaller, more mobile, multi-functional logistics capabilities to operate within the range of their fires. Russia has the ability to employ its long range fires against logistics nodes from up to 50 kilometers away. In its 2014 fight with the Ukraine, Russian forces employed electronic intercepts and Unmanned Aircraft Systems (UAS) to target troop concentrations with artillery and armed drones to drop munitions on fuel and ammunition depots in rear areas. Russia's ability to mass fires against long range targets deprives their adversaries of "safe havens" such as the Forward Operating Bases (FOBs) where Combat Service Support Areas (CSSAs) have been established during the wars in Iraq and Afghanistan.²⁵ In order to counter Russia's long-range targeting and strike capability, small, mobile, multi-functional logistics units should be used to follow in trace of supported units. The multi-functional nature of these units would make them a one stop shop for resupplying a Company to Battalion size unit. The smaller concentration of these capabilities make them a less enticing target for Russian artillery. The ability to remain mobile will make those capabilities difficult to locate in the event that they are targeted.

²⁴ Headquarters US Marine Corps. *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*. September 2016, 1, 5, and 9.

²⁵ *Russian New Generation Warfare Handbook*, Version 1. Fort Meade, MD: Asymmetric Warfare Group, December 2016, 18-27 and 40.

Similarly, the geography and advancement of Chinese targeting capabilities necessitates the use of small, distributed, multi-functional logistics capabilities to apply logistics resources economically while remaining below China's targeting threshold. Over the past two decades, China has developed a robust short and medium range ballistic missile capability that gives them the capability to conduct precision strikes against land and sea based targets out to the first island chain. People's Liberation Army (PLA) writings highlight logistics bases such as airfields, ports, and logistics support areas as vulnerabilities that should be targeted.²⁶ In order to avoid being targeted by Chinese fires, logistics forces will need to position numerous small logistics nodes across the island chains rather than massing capabilities at just a few key logistics nodes that can be easily targeted. The large quantity and small size of these logistics nodes would make them less enticing targets for expensive and low density Chinese weapons to be applied against. However, those small nodes would still need to be able to provide support across the functions of logistics for the maneuver elements transiting through their area of responsibility.

While the advancement of adversary targeting capabilities makes traditional logistics practices unpractical in a contested environment, our own technological advancements provide the opportunity to support the next conflict using different practices and different structures. The development of additive manufacturing technologies and unmanned logistics platforms will allow those small, mobile, multi-functional logistics units to support distributed operations without massing logistics capabilities in the theater of operations.

The ability to fabricate the specific part that is needed for a broken piece of equipment on the battlefield rather than reaching back to warehouses that contain every conceivable piece of equipment that might break will reduce the need for Supply Battalions to be positioned within

²⁶ US Department of Defense. *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2018*. (Washington, DC: Office of the Secretary of Defense, 2018), 60 and 63.

the theater of operations. While the Marine Corps' additive manufacturing is still being developed and tested, it has already demonstrated the ability to fabricate repair parts for both ground and aviation equipment.²⁷ Recently, that capability became more expeditionary with the development of Expeditionary Fabrication Labs (X-FAB) that allow teams of four Marines to print repair parts within a matter of hours.²⁸ In a 2017 interview, the Marine Corps' Deputy Director of Next Generation Logistics (NexLog) Additive Manufacturing outlined that these expeditionary additive manufacturing capabilities were intended to reduce the Marine Corps' reliance on "iron mountains" of spare parts because of future adversaries' ability to target them. He outlined how these capabilities would make maintainers and supply personnel and equipment less vulnerable to attack by enabling them to be distributed across the battlefield in small teams rather than large concentrations.²⁹ The ability to predict and push consumable classes of supply coupled with the ability to fabricate repair parts that are less predictable from distributed locations reduces the need for massed supply support that Supply Battalions provide.

Just as additive manufacturing presents an opportunity to reduce and distribute the footprint of maintenance and supply personnel, unmanned logistics platforms present the opportunity to reduce the concentration of distribution capabilities required to deliver sustainment to maneuver elements. During operations in Iraq and Afghanistan over the past two decades, supplies were distributed across the battlefield using massive convoys consisting of ten to 150 vehicles.³⁰ A

²⁷ Lance M. Bacon, "Here's how Marines are Using 3-D Printing to Make their Own Parts." *Marine Corps Times*. April 2016. <https://www.marinecorpstimes.com/news/your-marine-corps/2016/04/30/here-s-how-marines-are-using-3-d-printing-to-make-their-own-parts/>.

²⁸ Additive Manufacturing Today, "Marine Corps Evaluates Deploying Mobile 3D Printing Labs," February 1, 2019, <https://additivemanufacturingtoday.com/marine-corps-evaluates-deploying-mobile-3d-printing-labs>.

²⁹ Jen Judson, "Marine Corps Looks to 3-D Printing to Make Spare Parts Downrange." *DefenseNews.com*, September 11, 2017, <https://www.defensenews.com/smr/equipping-the-warfighter/2017/09/11/marine-corps-looks-to-3-d-printing-to-make-spare-parts-downrange/>.

³⁰ Melissa D. Mihocko, *Marines in Iraq 2003: Combat Service Support During Operation Iraqi Freedom*. (Washington, DC: US Government Printing Office, 2011), 50 and Kenneth W. Estes, *US Marine Corps Operations in Iraq, 2003-2006* (Quantico, VA: United States Marine Corps History Division, 2009), 14.

convoy of that size would quickly become a vulnerable target against a near peer threat.

However, the development of unmanned logistics aircraft, watercraft, and ground vehicles offers the potential to reduce the size and frequency of convoys necessary to sustain maneuver forces.³¹

The use of a variety of platforms makes distribution less predictable and more difficult to target.

The development of this capability also reduces the need for the type of massed transportation support that Transportation Support Battalions provide.

The advancement of Chinese and Russian targeting capabilities have made the employment of functional battalions en masse obsolete in an operational environment against a near peer threat. Technological advancements like additive manufacturing and unmanned logistics platforms provide opportunities for the capabilities that reside within those battalions to be distributed into small, mobile, multi-functional capabilities that are still relevant in the next fight. Thus, just as the rise of the helicopter in the Korean War gave birth to the MAGTF construct which resulted in the establishment of an independent LCE, the rise of enemy and friendly capabilities once again necessitates changes in the way the Marine Corps structures for combat. The logistics community must prepare to deploy numerous small, mobile, multi-functional logistics units rather than a few large, functionally aligned battalions.

³¹ Megan Eckstein, "USMC Logistics Pursuing Unmanned Systems, 3D Printing To Support Distributed Ops," *USNI News.org*, July 8, 2016, <https://news.usni.org/2016/07/08/usmc-logistics-pursuing-unmanned-systems-3d-printing-support-distributed-ops>.

OPERATION IRAQI FREEDOM I LOGISTICS

The Force Service Regiments (FSR) created in the wake of the Korean War continued to grow in the years that followed. During the Vietnam War, additional motor transportation and engineer battalions were added to the FSRs and at the conclusion of the war another force structure study was conducted.³² That study led to the activation of the Force Service Support Group (FSSG) with functionally aligned battalions across each function of logistics to serve as the LCE of the MAGTF. Throughout the 1980s and 1990s, contingency operations were supported with task organized logistics forces Combat Service Support Detachments from the FSSG.³³

By 2001, the FSSG was a subordinate unit to the Marine Expeditionary Force (MEF) and an adjacent unit to the MAW and Marine Division. It was organized into functionally aligned battalions that each focused on a single function or subfunction of logistics. The Headquarters and Service Battalion contained a Food Service Company and a Services Company and provided food services, postal, exchange, disbursing, and contracting support in to a MEF. The Supply Battalion contained a Supply Company, an Ammunition Company, and a Medical Logistics Company and conducted the requisition, storage, distribution, and salvage of all classes of supply in support of a MEF. The Maintenance Battalion contained Ordnance, Engineer, Electronic, Motor Transportation, and General Support Maintenance Companies and conducted field level maintenance support to ground equipment for a MEF. The Transportation Support Battalion

³² Frank Beardsley, "Force Troops," *Leatherneck* Vol 49, Iss 12, (December 1965), 23.

³³ W. L. Edwards, H. B., Wilder, Jr., T. H. Allen, W. Schubert, and J. L. Brenner, *Organization and Operations of Combat Service Support Elements of the Fleet Marine Force (1975-1980): Final Report of the Preferred Combat Service Support Structure* (Menlo Park, CA: Naval Warfare Research Center, Stanford Research Institute, March 1974).

(TSB) contained three Motor Transportation Companies, a Support Company, a Landing Support Company, and a Maintenance Company and conducted ground transportation, landing support, and aerial delivery support for a MEF. The Engineer Support Battalion (ESB) contained an Engineer Support Company, a Bulk Fuel Company, and three Engineer Companies and conducted survivability, mobility, countermobility, bridging, bulk liquid storage and distribution, and power generation and distribution in general support of a MEF.³⁴ The Medical Battalion contained three Surgical Companies and provided level two emergency health services support to a MEF.³⁵ The Dental Battalion contained three Dental Companies and provided dental health maintenance and emergency care for a MEF.³⁶

When the FSSG was required to support exercises or deployments, Combat Service Support Detachments (CSSDs) of varying sizes were formed with capabilities from across the FSSG's functional battalions and an ad hoc headquarters was formed and placed on top of those capabilities.³⁷ While this structure capitalized on garrison efficiencies, it did so at the expense of operational employment. Thus, the Marine Corps' logistics structure was a contradiction of its own warfighting doctrine which states that "Operating forces should be organized for warfighting and then adapted for peacetime rather than vice versa."³⁸ Consequently, the entire LCE of the MAGTF had to be completely reorganized in preparation for OIF I in order to support combat operations. The OIF I reorganization of the FSSG led to a permanent

³⁴ The Commander and Staff of 1st FSSG. "Brute Force Combat Service Support: 1st Force Service Support Group in Operation Iraqi Freedom." *Marine Corps Gazette*, August 2003, 35.

³⁵ Mihocko, 2-4 and 18.

³⁶ *Reorganization of the Marine Logistics Group: Enhanced Combat Logistics Support to the Marine Air Ground Task Force (MAGTF)*. (Logistics Vision and Strategy Branch (LPV), Installations and Logistics, Headquarters Marine Corps. Washington, DC: February, 2008), PowerPoint presentation, 5 and 13.

³⁷ Initial Observations Report, Enduring Freedom Combat Assessment Team. *Force Service Support Group Garrison Organization and Transition to Expeditionary Operations*. (Washington, DC: Government Printing Office, August 2003), 1.

³⁸ Headquarters US Marine Corps. *Warfighting*. MCDP 1. Washington, DC: Headquarters US Marine Corps, June 30, 1991. 55.

restructuring of the LCE that attempted to prioritize operational effectiveness while maintaining the efficiency that the FSSG construct offered.

When I MEF began planning for operations in Iraq shortly after the September 11th 2001 attacks, the 1st FSSG Commanding General, Brigadier General Edward G. Usher recognized that his functionally aligned organization was not appropriately structured to support I MEF's anticipated mission.³⁹ In October of 2002, he made the decision to completely reorganize 1st FSSG from the functional battalion structure outlined in Figure 4 to the multi-functional structure outlined in Figure 5 in preparation for I MEF's March 2003 deployment in support of OIF I.⁴⁰ The FSSG's war-time structure created multi-functional direct support units that were light enough to travel with the maneuver elements they supported and general support battalions that were functionally aligned to support the MEF as a whole.

Force Service Support Group Structure

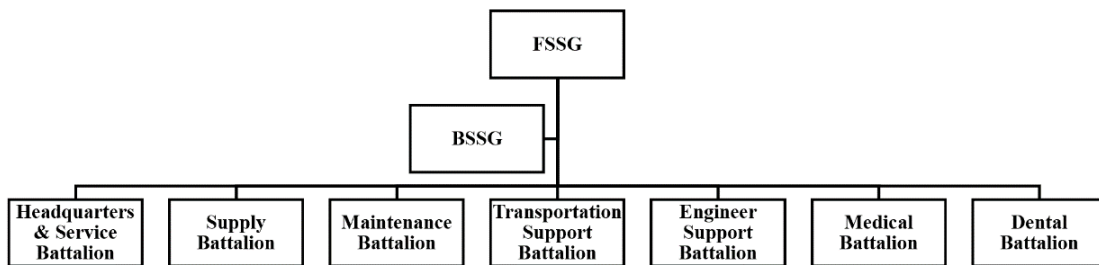


Figure 6. Force Service Support Group Structure

Source: Melissa D. Mihocko, *Marines in Iraq 2003: Combat Service Support During Operation Iraqi Freedom*. Washington, DC: US Government Printing Office, 2011.

³⁹ Mihocko, 3.

⁴⁰ Initial Observations Report, 3.

Operation Iraqi Freedom Logistics Task Organization

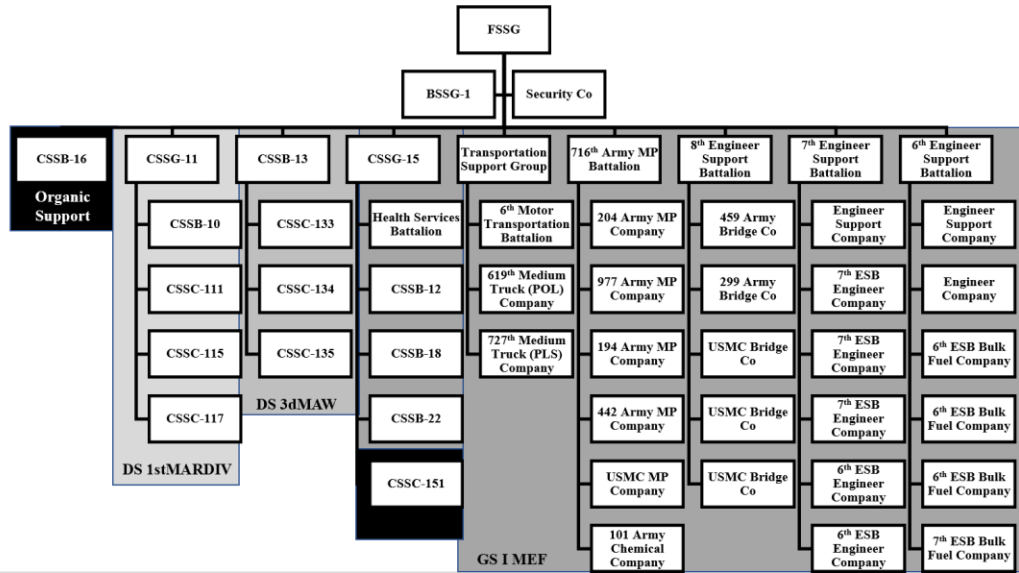


Figure 7. Operation Iraqi Freedom Logistics Task Organization

Source: Melissa D. Mihocko, *Marines in Iraq 2003: Combat Service Support During Operation Iraqi Freedom*. Washington, DC: US Government Printing Office, 2011.

Combat Service Support Group-11 (CSSG-11) was formed as the direct support logistics element for 1st Marine Division.⁴¹ The 1st FSSG's Brigade Service Support Group-1 (BSSG-1) staff formed the nucleus of the CSSG-11 staff.⁴² CSSG-11 composited with three subordinate Combat Service Support Companies (CSSCs) each responsible for providing direct support to a Regimental Combat Team (RCT) and Combat Service Support Battalion-10 (CSSB-10) that pushed sustainment to the CSSCs and provided support to the remainder of 1st Marine Division's forces. The CSSCs were formed from 1st Transportation Support Battalion's (1st TSB) three Motor Transportation Companies which bolted on maintenance, supply, utilities, general engineering, landing support, explosive ordnance disposal, military police, ammunition handling, services, heavy equipment, and medical capabilities from the remaining functional

⁴¹ The Commander and Staff of 1st FSSG, 34.

⁴² Michael S. Groen, *With the 1st Marine Division in Iraq, 2003: No Greater Friend, No Worse Enemy*. (Quantico, VA: History Division, Marine Corps University, 2006), 33-34.

battalions.⁴³ The Combat Service Support Group-1 (CSSG-1) staff at 29 Palms, California formed the nucleus for CSSB-10 with the battalion's 947 personnel coming from each of the seven functional FSSG battalions, the Marine Reserves, and the Army.⁴⁴

A similar organization was formed to provide direct support to 3rd Marine Aircraft Wing (3rd MAW). The Fourth Landing Support Battalion's (4th LSB) staff was activated from the reserves and became the headquarters for Combat Service Support Battalion-13 (CSSB-13). CSSB-13 composed with three CSSCs formed around elements of 4th LSB, an intermediate maintenance activity based out of Miramar, California, and Combat Service Support Detachment-16 (CSSD-16) based out of Yuma, Arizona. CSSB-13 provided direct support to 3rd MAW by supporting two airfields and augmenting the Marine Wing Support Squadrons (MWSSs) with additional logistics capabilities.⁴⁵

Seven different organizations within FSSG combined forces to provide general support logistics to I MEF throughout OIF I. The Supply Battalion staff formed the nucleus of Combat Service Support Group-15 (CSSG-15) which was responsible for providing supply, maintenance, and health services support in general support of the MEF as well as directly supporting Task Force Tarawa and the I MEF Command Element. Their subordinate units were formed from Marine Expeditionary Unit (MEU) Service Support Group-22 (MSSG-22), Maintenance Battalion, the remainder of Supply Battalion, Headquarters and Service Battalion, and Medical Battalion. The general support transportation provider for the MEF, Transportation Support Group (TSG), was formed by combining the 1st TSB headquarters, the reserve 6th Motor Transportation Battalion, the Army's 319th Petroleum, Oil, and Lubricants (POL) Company, and

⁴³ *Reorganization of the Marine Logistics Group: Enhanced Combat Logistics Support to the Marine Air Ground Task Force (MAGTF)*, 8.

⁴⁴ Mihocko, 4-5.

⁴⁵ *Ibid*, 5-6.

the Army's 727th Palletized Loading System (PLS) Medium Truck Company. Three separate ESBs were reorganized around a function of engineering to provide general engineering support to the MEF. Eighth Engineer Support Battalion (8th ESB) combined all of the Marine Corps' bridging capabilities along with two Army Bridge Companies and became responsible for bridging support to the MEF. Seventh Engineer Support Battalion (7th ESB) combined their organic Engineer Support Company and three organic Engineer Companies with two additional Engineer Companies from 6th Engineer Support Battalion (6th ESB) and assumed responsibility for breaching, construction, and route maintenance for the MEF. 6th ESB attached a Bulk Fuel Company from 7th ESB to give it four Bulk Fuel Companies with which to provide bulk liquid support to the MEF. The Army's 716th Military Police Battalion along with four Army Military Police Companies and one Army Chemical Company were attached to 1st FSSG and they along with the lone Marine Military Police Company provided convoy security and Enemy Prisoner of War (EPW) handling for the MEF. Elements of BSSG-1 combined with a Security Company and a Mortuary Affairs Company to form Combat Service Support Battalion-16 (CSSB-16) which performed FSSG staff functions and the handling of remains for I MEF.⁴⁶ Additionally, MSSG-11 formed three CSSCs that comprised Combat Service Support Battalion-19 (CSSB-19) which served as the FSSG's logistical reserve force.⁴⁷

The drastic reorganization that took place in preparation for OIF I was the result of a FSSG structure that was well suited to support its garrison mission but entirely ineffective for operational employment.⁴⁸ The FSSG structure that pooled capabilities into units by function of logistics in garrison only to reorganize into multi-functional units for their employment was built

⁴⁶ The Commander and Staff of 1st FSSG, 35.

⁴⁷ Mihocko, 6-11.

⁴⁸ *Reorganization of the Marine Logistics Group: Enhanced Combat Logistics Support to the Marine Air Ground Task Force (MAGTF)*, 5.

to improve community-specific training, facilitate the massing of logistics support, and provide efficient logistics packages to supported units. In the pursuit of these objectives, the FSSG sacrificed operational responsiveness, the trust derived from habitual relationships, unit cohesion, and multi-functional interoperability.⁴⁹

The pooling of logistics capabilities into battalions by function of logistics ensured that Marines received Military Occupational Specialty (MOS) specific training and development in the function of logistics that their battalion was designed around. For example, placing all of the FSSG's engineers and engineer equipment within an ESB ensured that subject matter experts across the functions of engineering were available to train young engineers in their craft and properly care for and employ engineer equipment. If sections, platoons, or companies of engineers along with their equipment had been apportioned out to the multi-functional units that would employ them, the fear was that leaders of those units would have been less likely to receive community-specific mentorship and development and they would have risked being improperly employed by staffs with less experience and knowledge of engineer-specific capabilities.⁵⁰ Consequently, the entire FSSG engineer capability was positioned within the ESB and engineer capability sets were attached to multi-functional logistics units as required for employment only after the Marines within those capability sets had been trained and groomed by their community.

The functional battalion construct of the FSSG was also intended to facilitate the massing of logistics in support of the MEF. The placement of functional battalions under the FSSG enabled

⁴⁹ Initial Observations Report, 1 and Joslyn Hemler, Yuna Huh Wong, Walter L. Perry, and Austin Lewis. *Developing a Capacity Assessment Framework for Marine Logistics Groups*. (Santa Monica, CA: RAND Corporation, 2017), 15.

⁵⁰ Scottie S. Redden, "The Marine Engineers in Today's MAGTF: Historical Perspective, Consequences, and Alternatives." (master's thesis, Marine Corps University, 2013), 15.

the FSSG staff to reach directly down to a single unit and task as much of a particular capability as it desired in support of a specific mission rather than reaching across multiple multi-functional battalions to achieve the same effect.⁵¹ The structure provided a single “belly button” for the FSSG staff to push when it needed a particular function of logistics to be performed. If the FSSG commander wanted equipment readiness to improve, he could look squarely at his Maintenance battalion commander to solve the problem. If he wanted to transport a unit to an airfield for an exercise, he could look to his TSB commander to support the movement. In this manner, the functional battalion construct simplified garrison support for the FSSG staff.

The strongest argument for the FSSG’s functional battalion construct is that it facilitated efficiency in the provision of task-organized logistics capabilities that were tailored for the specific mission set. When support was required for an exercise or deployment, the FSSG would assess the personnel, equipment, and anticipated mission of the supported unit and construct a multi-functional logistics capability specifically designed to support that unit. The FSSG would then task its functional battalions to provide the personnel and equipment to staff the multi-functional unit. In this manner, the FSSG constructed units that were capable of supporting the mission without expending unnecessary capabilities that might be needed elsewhere. The FSSG’s ability to task organize in this manner has been described as its greatest strength.⁵²

The provision of combat service support units specifically tailored for the mission they were tasked to support undoubtedly facilitated the efficient allocation of logistics capabilities in support of the MEF. However, the requirement to form a completely new unit from scratch every time a new mission arose made the FSSG less responsive and made the multi-functional CSSDs it produced less prepared to operate as a cohesive unit in the performance of their

⁵¹ Hemler, 15.

⁵² Initial Observations Report, 2.

assigned mission.⁵³ Forming a battalion staff from scratch, joining personnel and transferring equipment from across the functional battalions to the new multi-functional battalion, and preparing that unit to work together to perform an assigned mission all take time that is not always available in an unpredictable operating environment. The lead time required for 1st FSSG's reorganization in support of I MEF's OIF I deployment effectively illustrates this point. The unit's transition from a functionally aligned organization to its multi-functional structure in support of OIF I took more than five months to complete.⁵⁴ Thus, this type of reorganization was only possible because of the extensive notice that I MEF received of its impending deployment.

In addition to being less responsive to unexpected deployment orders, the FSSG functional battalion structure inhibited the establishment of habitual relationships between supported and supporting units. Because multi-functional battalions drew personnel and equipment from across the FSSG's battalions, the battalion tasked with providing the nucleus for the headquarters of these ad hoc battalions was typically based on who provided the bulk of forces to the new unit and what the focus of the unit's logistical mission was expected to be. Consequently, it was impossible for a supported unit to predict which supporting unit staff would be providing its sustainment. Thus, the functional battalion structure did not facilitate the establishment of relationships and trust between supported and supporting units that is developed when commanders and staffs work together on a regular basis. In fact, the importance of strong relationships between supported and supporting commanders and staffs was one of the driving forces behind General Usher's decision to reorganize the FSSG prior to OIF I. He believed that commanders who knew each other, trained together, and understood one another's strengths and

⁵³ Hemler, 15.

⁵⁴ Initial Observations Report, 3.

weaknesses would trust one another and work through problems more effectively in combat. That belief drove him to establish multi-functional direct support logistics units for each of the RCTs, the Division as a whole, and the MAW that followed in trace of and provided all functions of logistics for their supported units. During OIF I, these direct support logistics providers were cited as key to sustaining tempo and flexing to evolving supported unit schemes of maneuver.⁵⁵

The ad hoc formation of multi-functional battalions sacrificed unit cohesion and forced newly formed units to focus internally vice focusing on the needs of the unit they were tasked to support. The manner in which multi-functional battalions were formed for employment under the FSSG construct meant that in some cases, nearly 1,000 personnel from across nine different battalions were cobbled together into a separate battalion.⁵⁶ Sometimes Marines were attached to the new multi-functional battalions as part of their section, platoon, or company. However, frequently individual Marines and Sailors were thrown together to form the capability necessary to meet the support requirement. As a result, unit leaders spent the first few months of their unit's existence trying to learn the strengths, weaknesses, and personalities of their subordinates so that they could be properly employed. When the Enduring Freedom Combat Assessment Team (EFCAT) assessed the FSSG's OIF performance they described the act of forming ad hoc battalions for deployments as akin to forming 'pick-up' baseball teams at the last minute to play in the World Series. In addition to trying to join personnel and equipment into a cohesive battalion, newly formed battalion staffs had to develop Standard Operating Procedures (SOPs) and learn how to command and control the logistical functions that were not typically organic to their parent battalion. As a result of newly formed multi-functional battalions' focus on

⁵⁵ Mihocko, 2-4 and Groen, 33-34.

⁵⁶ Mihocko, 4-5.

developing SOPs for multi-functional operations, joining personnel and equipment, and attempting to fuse those personnel into a cohesive unit, the supporting unit was far more focused on internal matters than on the needs of its supported unit. Brigadier General Usher described the FSSG's internal focus as a problem that made it a "team supporter rather than a team member".⁵⁷

In the wake of its OIF I deployment, the Marine Corps was forced to reassess the way it permanently structured its logistics forces. The logistics community sought to capitalize on the structure that 1st FSSG employed in combat without sacrificing the advantages that the FSSG structure offered. In an ideal world, the Marine Corps would have Direct Support Combat Logistics Battalions (DS CLBs) with organic permanent structure across the functions of logistics to support a robust RCT in addition to functionally aligned battalions with additional capability to support the MAGTF as a whole. This is essentially the structure that the Army employs with Brigade Support Battalions (BSBs) that possess the organic capability to support their Brigade Combat Teams (BCTs) and Combat Sustainment Support Battalions (CSSBs) and Sustainment Brigades with functionally aligned battalions that provide general support to a Division, Corps, or area of operations.⁵⁸ However, unlike the Army, Marine RCTs are task-organized for the mission they are assigned rather than standing identical organizations. As such, the sustainment they require also varies and must be task-organized in order to avoid the unnecessary expenditure of logistics capabilities in support of an RCT that does not require those capabilities. The Marine Corps simply lacks the overall structure to build DS CLBs with the permanent capabilities to support their RCTs while simultaneously maintaining functionally

⁵⁷ Initial Observations Report, 2-3.

⁵⁸ Davie Burgdorf, *Army Logistics Quick Reference*. (CASCOM Force Development Directorate, 18 February, 2014), 35 and 55.

aligned battalions with the capacity to support the MAGTF across their respective function of logistics.

2006 Marine Logistics Group Structure

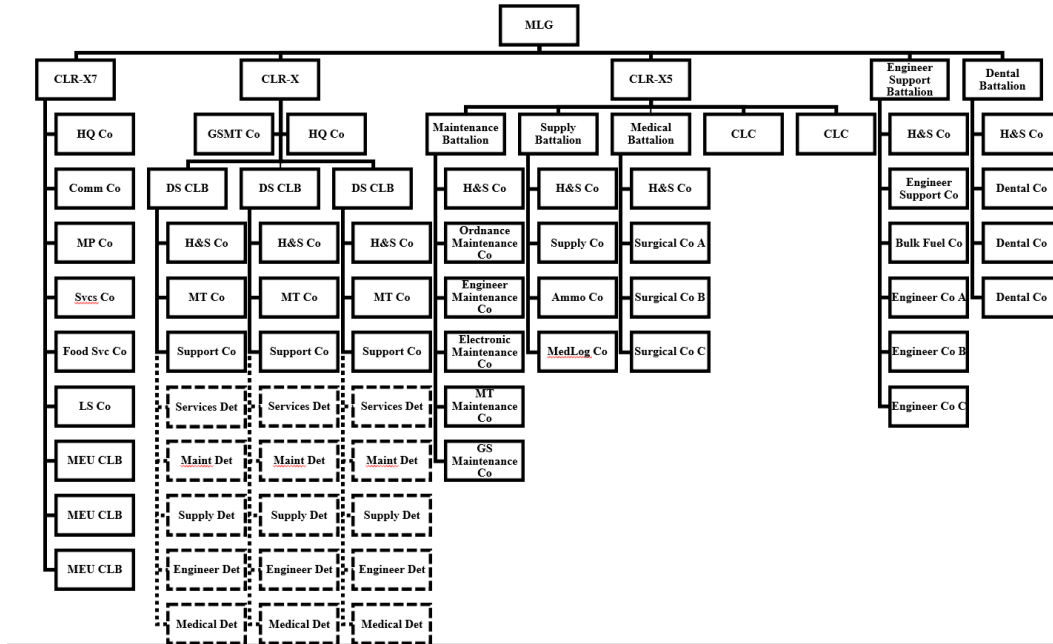


Figure 8. Operation Iraqi Freedom Logistics Task Organization

Source: *Reorganization of the Marine Logistics Group: Enhanced Combat Logistics Support to the Marine Air Ground Task Force (MAGTF)*. (Logistics Vision and Strategy Branch (LPV), Installations and Logistics, Headquarters Marine Corps. Washington, DC: February, 2008), PowerPoint presentation, 13.

The compromise that the Marine Corps settled on maintained functional battalions but created standing direct support units that only contained transportation capability but were prepared to bolt on additional capabilities from across the functional battalions. The structure that 1st FSSG employed during OIF I was adapted and implemented across the Marine Corps in 2006 as outlined in Figure 8. The new Marine Logistics Group (MLG) structure prioritized operational employment while maintaining the efficiency gained from task-organizing forces. The new structure placed a regimental headquarters over many of the functionally aligned battalions and a separate regimental headquarters over the services and Marine Expeditionary

Unit (MEU) Combat Logistics Battalions (CLBs). The most significant change that the MLG structure implemented was the establishment of standing Direct Support Combat Logistics Regiments (DS CLR) and standing DS CLBs to support Division. Each DS CLB was aligned with an infantry regiment to expedite and simplify the provision of support to the infantry regiment and create habitual relationships between the supported and supporting units. While the DS CLBs were standing units with a robust transportation capability and standing staffs capable of commanding and controlling that capability, they lacked organic structure across the other five functions of logistics. The omission of these capabilities from the standing structure of the DS CLBs was intentional since the DS CLBs were always intended to bolt on additional capabilities to their standing battalion structures from the functional battalions as required to support their respective infantry regiments.⁵⁹ While this process still required task-organization to bring the DS CLBs to full capacity to support their respective infantry regiments, the standing battalion staffs were able to develop SOPs and establish habitual relationships with their supported units while maintaining economy of force in the application of logistics capabilities resident within the functional battalions.

The MLG structure was intended to make the LCE more responsive, facilitate the formation of habitual relationships with supported units, and build unit cohesion and multi-functional knowledge while retaining the efficiency of the FSSG construct. In order for it to achieve those objectives, functional battalions must rehearse providing defined capability sets to the CLBs for employment and the CLBs must rehearse aggregating those capabilities into multi-functional battalions, companies, platoons, and sections capable of supporting distributed operations. While many logistics units do rehearse these practices, current core Mission

⁵⁹ *Reorganization of the Marine Logistics Group: Enhanced Combat Logistics Support to the Marine Air Ground Task Force (MAGTF)*. 10 and 13.

Essential Tasks for logistics units do not define this requirement well enough to ensure such rehearsals are taking place regularly. The measure of effectiveness of a Maintenance Battalion can no longer be determined by its ability to “Conduct Repairs” or “Conduct Modifications” as a cohesive battalion. Instead, its effectiveness should be determined by its ability to provide Maintenance Support Teams (MSTs), Repairable Issue Point (RIP) Teams, and Additive Manufacturing Teams to the multi-functional units that will employ them. Similarly, the measure of effectiveness of a DS CLB cannot be based solely on its ability to employ its organic assets. Instead, its effectiveness should be determined by its ability to plan for, rapidly integrate, and command and control non-organic capabilities such as the MSTs, RIPs, and Additive Manufacturing Teams in support of a GCE component.

Current MAGTF-level training exercises such as Integrated Training Exercise (ITX) and Mountain Exercise (MTX) serve as good forcing functions because they require supporting LCEs to attach and employ all functions of logistics in order to fulfill support requirements. When DS CLBs are tasked to support these exercises and functional battalions are tasked to serve as force providers to provide additional capabilities required to support the GCE, the logistics community gets a good mission rehearsal that aligns with its concept of employment. The shortfall in these types of rehearsals is that there is nothing rapid about them. Both functional force-providing battalions and multi-functional force-receiving battalions have months to plan and prepare for the transfer of capabilities. As a result, this type of rehearsal fails to demonstrate that the current MLG construct is any more responsive than the OIF I FSSG structure was. Rehearsing rapid task-organization through short notice Strategic Mobility Exercises (STRATMOBEXs) that task the functional battalions with providing and the DS CLBs with receiving specific capability sets would require functional battalions to maintain defined

capability sets that are prepared for deployments and would require DS CLBs to maintain processes and procedures for joining and employing those capability sets. This type of rehearsal would provide a clear picture of how much more responsive the MLG structure is and inform timelines for rapid deployment.

The Marine Corps is simply responsible for too many diverse mission sets and has too few logistics capabilities to apply to those mission sets to adopt a permanent structure that meets the requirements of every possible mission. The current structure that employs functional battalions as force providers and multi-functional battalions as the nucleus for force employment strikes the ideal balance between the efficiency of the FSSG construct and the cohesion and multi-function interoperability of the construct employed during OIF I. The flexibility that the FSSG structure sought and the responsiveness that the MLG structure was designed to bring to fruition can only be simultaneously attained through rehearsing the process of rapidly task-organizing functional battalion capabilities into multi-functional units of employment. Functional battalions must rehearse providing defined capability sets to the CLBs for employment and the CLBs must rehearse aggregating those capabilities into multi-functional battalions, companies, platoons, and sections capable of supporting distributed operations.

CONCLUSIONS AND RECOMMENDATIONS

World War II logistical failures demonstrated that the placement of robust logistics capabilities within the Division was a mistake that overburdened combat units with sustainment responsibilities and resulted in the neglect of sustainment functions leading up to and during combat operations. The failure of Marine Divisions to properly man, equip, and train their organic logistics units and the neglect of the sustainment missions those units were tasked to perform resulted in sweeping logistical failures at Guadalcanal. The Marine Corps responded to these failures by forming operational and theater-level logistics organizations and transferring logistics capabilities from the Division to those organizations throughout the war. The lack of advocacy for logistics units leading up to conflict, the neglect of sustainment functions during the conflict, and the burden that those units placed on the units they were supposed to support demonstrates why robust logistical capabilities should be maintained separate from the combat organizations they are tasked to support.

The creation of the MAGTF construct in the wake of the Korean War illustrates how technological advancements have driven organizational change in the past and improved adversary targeting capabilities are driving the Marine Corps to adapt to technological advancements again. The mass use of the helicopter in Korea led the MAF to take on a more prominent role closer to the fighting than they had in previous conflicts. The absence of a logistics capability to support the MAF drove the Marine Corps to establish a logistics regiment independent of Division as the LCE to support the newly conceived MAGTF. Similarly, improved Russian and Chinese targeting capabilities make it unrealistic for logistics units to mass at stagnant locations. Instead, small, mobile, multi-functional logistics capabilities are necessary to support distributed operations. Recent advancements in additive manufacturing and

unmanned logistics vehicles present the opportunity for the logistics community to successfully support distributed operations using smaller more mobile forces.

The complete restructuring of the FSSG for OIF I highlights the importance of organizing forces for their combat mission to the greatest extent possible. The functionally aligned FSSG better facilitated community-specific training and the efficient application of logistics forces, but it required the ad hoc formation of multi-functional logistics units from scratch each time it was employed. This structure sacrificed operational responsiveness, the trust derived from habitual relationships, unit cohesion, and multi-functional interoperability. In response to the shortfalls of the FSSG structure, the logistics community created standing multi-functional logistics battalions and regiments under which the functional battalion capabilities could be task-organized for employment. This change did not completely eliminate the requirement to task-organize, but it did create a standing cohesive unit under which to task organize. In order for this structure to support the future employment of logistics forces, the logistics community must rehearse rapidly task-organizing into small, mobile, multi-functional units capable of supporting distributed operations.

The lessons learned that drove structural changes within the Marine Corps' logistics community during World War II, after the Korean War, and during OIF I highlight the importance of having a structure that insulates combat units from sustainment responsibilities, anticipates the impact of technological advancements on force structure, and supports the organization of forces for combat operations without sacrificing efficiency. The current structure accounts for the lessons learned during previous conflicts and achieves the best possible balance between efficient allocation of logistics capabilities and the effective application of those capabilities. Consequently, the current logistics structure should not be changed. Instead, the

logistics community should learn to effectively employ the structure it has by rehearsing the process of rapidly task-organizing functional capability sets under small, mobile, multi-functional units in order to make them proficient and responsive enough to respond to the next conflict.

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