

Operation Watchtower: The Battle For Guadalcanal--A Foundation For Future USAF Expeditionary Aerospace Force (EAF) Logistics Transformation

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Subject Area – Logistics

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Preface

The genesis for writing this paper occurred when I was a Captain stationed in Germany. As the Maintenance Supervisor for the Component Repair Squadron, I briefed the Deputy Chief of Staff for Logistics on the impact of the USAF Two-level maintenance initiative at the wing level. Although I briefed that the program was effective, I used a historical case study to prove that we must be cautious when undertaking such initiatives. Unfortunately, I was told that I needed to get on board with the program. My frustration with his comments convinced me that if I were ever involved with an USAF-directed logistics initiative, I would use historical lessons to build its foundation. Following graduation from Marine Command & Staff College, my next assignment will be to the AF/IL staff where I will be working on the next revolutionary logistics initiative, Logistics Transformation. My goal is to use research on the USMC expeditionary experience during Operation WATCHTOWER to help build a fundamental foundation for Logistics Transformation as the USAF institutes its Expeditionary Aerospace Force.

My research would not have been possible without the professional assistance of two outstanding individuals. I would like to express my sincere thanks to both my Marine Command & Staff College mentors, Colonel Stephen M. Fenstermacher, USMC and Dr. Richard L. Dinardo for their guidance and inspiration during my research. I would have never finished this paper if it were not for their encouragement and support. Their recommendations significantly improved this paper beyond any of my expectations. Finally, I would like to thank my wife, Suzie for her patience, encouragement and unselfish support during my research.

Executive Summary

Title: OPERATION WATCHTOWER: THE BATTLE FOR GUADALCANAL--A FOUNDATION FOR FUTURE USAF EXPEDITIONARY AEROSPACE FORCE (EAF) LOGISTICS TRANSFORMATION

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Thesis: An analysis of Operation WATCHTOWER, the battle for Guadalcanal, provides a valuable template for the USAF to use as a basic foundation for the transformation of logistics in an expeditionary environment.

Discussion: Using Operation WATCHTOWER as a template for USAF Logistics Transformation is relevant for two reasons. First, Operation WATCHTOWER was the first modern day expeditionary operation for the Marines. The USAF is entering new territory and can use the Marine Corps' extensive expeditionary experience during Operation WATCHTOWER as a guide for its own expeditionary operations. Second, the Americans achieved a successful outcome despite long lines of communications because they applied the principles of logistics and integrated the warfighting functions more effectively than the Japanese did. Likewise, the USAF must ensure LT mutually supports the EAF concept of logistics. The principles of logistics and the combination of logistics and the other warfighting functions must be validated against LT attributes to ensure LT will effectively support USAF expeditionary operations. Although LT initiatives can not directly impact manpower and equipment shortfalls, LT must revamp logistics processes to reduce FOL setup time and improve expeditionary sustainment.

Conclusion(s) or Recommendation(s): The concept of reengineering traditional logistics processes is innovative and challenging, yet, the USAF should be careful not to completely leverage logistics doctrine on "commercial only" best practices without keeping its processes focused on the warfighter. Often, new initiatives like LT become popular at the headquarters level because of the potential for significant manpower cuts or huge dollar savings. Traditional military logistics processes are notoriously redundant and complex, but effective during the "fog" and "friction" of war. Logistics Transformation must ensure there is a proper balance between commercial efficiency and military effectiveness. Most importantly, the USAF must not forget that Logistics Transformation is not the final solution to all the logistics challenges in the 21st century.

Chapter 1

Operation ALLIED FORCE

Strange as it may seem, the Air Force, except in the air, is the least mobile of all the services. A squadron can reach its destination in a few hours, but its establishment, depots, fuel, spare parts, and workshops take many weeks, and even months to develop.

—Winston Churchill

A recent Operation ALLIED FORCE after-action briefing to the 1999 USAF Logistics Officers Association Conference may have dispelled some of Winston Churchill's concerns over the expeditionary nature of airpower. Airpower has significantly evolved over the past decade from a garrison-based, Cold War force to a light, lean, and lethal expeditionary force, which was validated by the successful 78-day air campaign in Kosovo. Operation ALLIED FORCE was the first USAF expeditionary operation using the post-Cold War force structure. Several key operational and logistics data points were significant to the campaign's overall success. Operation ALLIED FORCE employed 563 aircraft, flew 17,477 operational sorties, maintained an 82.2% mission capable rate, deployed over 22,000 personnel and over 44,000 tons of cargo to 14 overseas bases during the Kosovo campaign.¹ Although Operation ALLIED FORCE successfully proved the expeditionary attribute of airpower, there were valuable lessons for military logisticians. Lessons included the need to build a robust site survey process, develop a

light, lean deployment with reachback capability, develop the capability to predict theater sustainment requirements, institutionalize in-transit visibility, plan for customs clearance requirement up front and early, and improve aircraft maintenance repair processes.² As a result, many of the lessons from Operation ALLIED FORCE and current USAF expeditionary operations are driving fundamental changes within USAF logistics doctrine. The USAF solution for expeditionary logistics is Logistics Transformation (LT); the reengineering of fundamental logistics processes using military/commercial best practices and enabling technologies that span current organizational and functional lines. Yet, many issues and details remain unresolved as the USAF leverages its future logistics doctrine on LT. Fortunately, U.S. Marine Corps expeditionary operations during World War II provide key lessons learned that can assist the USAF transition to LT. Specifically, an analysis of Operation WATCHTOWER, the battle for Guadalcanal, provides a valuable template for the USAF to use as a basic foundation for the transformation of logistics in an expeditionary environment. The following analysis will be organized accordingly. Chapter Two will discuss the origin and the EAF concept of operations including a discussion of forward operating location setup time and manpower & equipment shortfalls. Chapter Three will use Operation WATCHTOWER as a historical case study that extracts lessons learned from the principles of logistics and the integration of logistics and the other warfighting functions of command and control, fires, intelligence, maneuver, and force protection as they relate to USAF expeditionary logistics. Chapter Four will discuss the USAF capstone concept of LT as a future logistics construct for the EAF. It will consist of the

¹ Colonel Dave Gillett, "Operation Allied Force After-Action," lecture presented at the Logistics Officers Association, Norfolk, VA, 16 December 1999.

² Ibid.

background, methodology, approach and analysis of LT attributes through the lens of Operation WATCHTOWER. Chapter Five will follow with final observations and recommendations.

Chapter 2

Expeditionary Aerospace Force (EAF)

EAF is a journey, and we have many more steps to take along this path as we transform the Air Force from a forward-based, Cold War force to an expeditionary force able to respond to crises around the globe.

—F. Whitten Peters, Secretary of the Air Force

On August 4, 1998, F. Whitten Peters, Acting Secretary of the Air Force and General Michael Ryan, USAF Chief of Staff, announced the development of an evolutionary change for the USAF-- the creation of the Expeditionary Aerospace Force. The Expeditionary Aerospace Force will transition a Cold War Air Force operating in a garrison state with robust basing and manning from bases with large infrastructures to a 21st century expeditionary Air Force focused on “Global Engagement”.³ EAF embodies the Air Force vision to organize, train, equip, and sustain its Total Force—Active, Air National Guard, and Air Force Reserve to support expeditionary operations across the entire spectrum of conflict. The expeditionary approach is conceived assuming a reduced force structure with fewer forward locations, austere forward operating bases with limited infrastructures, integrated force protection, and agile logistics. This chapter will examine the origin and the concept of operations for the EAF.

³ United States Air Force, *Air Force Policy Letter*, August 1998.

Origin

Following airpower's success during World War II, the USAF became an independent service in 1947. Less than nine months later, the USAF found itself engaged in the Berlin Airlift, which signaled the beginning of a containment strategy and the beginning of the Cold War with Russia. For nearly 42 years, the USAF was focused, manned, and equipped to contain the Soviet Union and the spread of communism throughout the world. Force structure, personnel, training, evaluation, and doctrine was all focused on this mission which was dependent on numerous, forward bases with large infrastructures to accomplish the mission. Fast forward to 1999 where the USAF was deployed with over 14,000 airman worldwide and 8,500 airman in Southwest Asia alone.⁴ Clearly, the USAF is in a transition stage, moving from a Cold War containment strategy to a "Global Engagement" strategy. Focusing on Joint Vision 2010's four operational concepts including dominant maneuver, precision engagement, full dimensional protection, and focused logistics, "Global Engagement" has significantly increase the operational tempo for Air Force members.⁵ The growing number of deployment days has created additional work for those who stay behind because the USAF is not authorized manpower billets to support a permanent deployment cycle to Southwest Asia. For those that deploy, the operational tempo is not evenly distributed among the same specialties or career fields because some personnel are assigned to bases that are tied to high operational tempo missions. As a result, recruiting, retention, and readiness indicators are currently experiencing a negative, downward trend as shown in Figure 1.

⁴Colonel Bob Allardice, "EAF Overview" briefing presented to the Logistics Officers Association, Norfolk, VA, November 12, 1999.

⁵ Department of Defense, *Joint Vision 2010*, 1.



Logistics System Performance Must Improve

FY 1991 Through August 1999

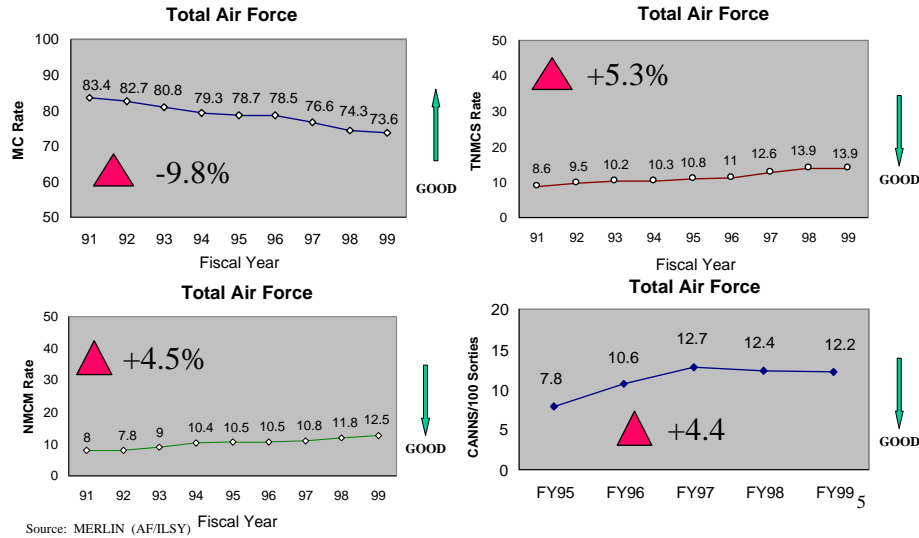


Figure 1. Logistics Readiness Indicators⁶

The EAF offers the unified commanders in chiefs (CINCs) and USAF multiple advantages. The EAF provides for a consistent presentation of forces, facilitates transition to major theater war OPLANs, provides efficient force scheduling for operations and training, and optimizes the Air Force’s personnel management system.

Concept of operations

The EAF has been developed incorporating individual Aerospace Expeditionary Forces (AEF) as fundamental deployment elements like Marine Expeditionary Units. An AEF is one of ten predetermined sets of USAF forces (aircraft, equipment, and personnel) from which tailored

⁶ MC Rate represents mission capable rate, TNMCS represents total non-mission capable rate, NMCM represents non-mission capable rate for maintenance, and CANNIS/100 Sorties, represents cannibalization per 100 sorties.

force packages will be deployed to support regional CINCs. Each AEF will operate a cross-section of Air Force weapons systems (120 - 150 aircraft) and include 10,000 to 15,000 men and women. Because an AEF is a Total Force organization it will include many types of aircraft and combat support personnel drawn from the USAF's Major Commands, the Air Force Reserve, and the Air National Guard. It will, by its very nature, consist of geographically separated units virtually linked to specific AEFs. Each AEF will have like capabilities to be deployed to support steady state contingency requirements in Operation NORTHERN WATCH at Incirlik Air Base (AB), Turkey and Operation SOUTHERN WATCH at Prince Sultan AB, Saudi Arabia over a 15-month cycle for a 90-day deployment period. Each AEF will have a designated lead wing to provide the command and control functions. Air Mobility Command will identify lead mobility wings, which will be responsible for airfield operations. Additionally, there will be two on-call contingency response wings or Aerospace Expeditionary Wings (AEW) to meet pop-up contingency crises within a 48-hour response window. The 366th Wing at Mountain Home Air Force Base (AFB), Idaho and 4th Fighter Wing at Seymour-Johnson AFB, North Carolina have been identified as the two AEWs. These wings will be on alternate on-call status every 90-days.⁷

The AEF rotation cycle will consist of four periods: Deployment/On-Call, Recovery, Normal Training & Exercise, and Preparation. The Deployment period will be a three month rotation where units aligned to an AEF will fill all scheduled combat and combat support deployment requirements worldwide. The Recovery period will be the one to two week period after the Deployment period to get personnel situated back at home and to reconstitute supplies and equipment. The Normal Training & Exercise period will be a ten-month period where units will participate in normal training and exercises such as Red Flag and Operational Readiness Inspections. The Preparation period will be a two-month period where units will enter a spin-up

⁷ Allardice, slide 13.

mode allowing the units to get ready to deploy. During the Preparation period, units will receive an area of responsibility orientation, theater intelligence, and rules of engagement.⁸ Management oversight for the AEF rotation cycles will be provided by the AEF Center (AEFC) located at Langley AFB, Virginia. The AEFC will be assigned 2 general officer directors and 100 personnel split into 2 management teams. The AEFC is a coordinating authority with direct line authority across all major commands, USAF components, and AEF/AEW units. The AEFC will facilitate AEF operations to include readiness/integration oversight of AEF steady state force packages and on-call AEW operations.⁹

From a logistics perspective, the USAF core competency of Agile Combat Support (ACS) is vitally important to the future success of the EAF and, as such, must be analyzed. Agile Combat Support enables the creation, deployment, sustainment, and protection of personnel, assets, and capabilities across the spectrum of operations. Agile Combat Support's primary tenets are responsiveness, reach-back capability, time-definite resupply, leveraging of information technology, improved weapons system performance and efficient installation support. These forward-looking tenets build upon the long-standing Air Force initiative of "lean logistics" to provide expeditious combat support -- from installations in and outside of the continental United States, to the flight lines at multiple deployed locations.¹⁰ Two key Agile Combat Support issues that must be resolved for the EAF to succeed include forward operating location setup time, and equipment and personnel shortfalls.

⁸ Ibid., slide 14.

⁹ Ibid., slide 15.

¹⁰ Dr. Sheila Widnall, *Air Force Policy Letter*, September, 1997.

Forward Operating Location Setup Time

With respect to the overarching concept of the EAF what is the challenge for the logistician? A key assumption of the EAF is that USAF AEFs will deploy to any airfield in the world that has the ability to host operational and airlift aircraft regardless of facilities. Like the American establishment of the strategically important Lunga airfield on Guadalcanal during World War II, forward operation locations (FOLs) and forward support locations (FSLs) will also be essential components of the EAF. According to RAND, “Global infrastructure preparation is, therefore, a central function of planning expeditionary support.”¹¹ RAND defines five basic components of the global infrastructure as FOLs, FSLs, CONUS support locations (CSLs), a responsive resupply/transport system, and a logistics command and control system. There are three FOL categories from which aircraft will operate. A category-3 FOL is a bare base location requiring at least a week or 144 hours to prepare for aircraft beddown. A category-2 FOL would have the same support facilities as a category-3 plus fuel storage facilities, a fuel distribution system, general-purpose vehicles, and basic shelter. A category-2 FOL would take up to 96 hours to prepare. A category-1 FOL would be a category-2 base with an aircraft arresting system, munitions buildup, and munitions storage sites with 3 days of prepositioned munitions. A category-1 FOL could be ready in 48 hours.¹² RAND analysis projects significant deltas between category-1 through category-3 FOLs in terms of deployment timelines, deployment footprints, global infrastructure investments, and recurring costs. Currently, USAF AEFs are deploying to category-1 FOLs with few infrastructure problems. However, the two AEWs will have difficulty meeting its 48-hour “bombs on target” response times if they have to deploy to category-2 or category-3 FOL bases. Optimistic timeline estimates for category-2 FOLs will

¹¹ RAND, “A Global Infrastructure, to Support EAF”, 3.

require at least 4-5 days and category-3 FOLs at least 8-9 days. Consequently, the USAF has tasked their AEF Battlelab at Mountain Home AFB to develop innovative ideas to employ AEFs/AEWs quickly with a reduced deployment footprint. Some of the ideas to date include the common boresight, wireless communications, a next generation munitions trailer, and a Self-contained Hardfloor Operating Platform (SHOP) to support a robust maintenance capability. Additionally, the USAF should also research the USMC concept of Maritime Prepositioning Forces (MPFs) which the Marines utilize to support their Marine Air-Ground Task Forces (MAGTFs) during expeditionary operations. The USAF could reduce their FOL setup time with an increase in MPS capability. Currently, the USAF owns cargo on 3 MPS while the Marines and Army each own 13 respectively.¹³

Manpower & Equipment Shortfalls

Although the EAF provides multiple advantages not only to the CINCs, but also to the USAF in terms of a consistent presentation of force and personnel management, it faces a significant resource hurdle. The EAF is a capabilities-based force that is currently funded as a threat-based two MTW force. Within the EAF concept, each flying squadron must be funded as an independent squadron to meet the current rotation schedule. Under the previous operational plans, a dependent flying squadron was required to deploy to the same location as an independent squadron sharing common support equipment and supplies. According to Air Combat Command (ACC), the USAF aircraft maintenance manpower is 3,200 funded maintenance authorizations and 750 pieces of support equipment short caused by converting six

¹² Ibid., 4.

¹³ Erin M. Metzinger, "Prepositioning as a Joint Undertaking: Military Sealift Command's Afloat Prepositioning Force," *Marine Corps Gazette*, August 1997, 13-14.

USAF dependent squadrons to independent status.¹⁴ Exacerbating the manpower authorization shortage, is the task organization of each of the flying squadrons. Each flying squadron is authorized dedicated maintenance personnel with specific technical expertise to perform organic aircraft maintenance tasks. With recent reenlistment rates below programmed USAF goals, the USAF is seeing an increase in the non-mission capable rates due for maintenance as shown in Figure 1 which directly impacts aircraft readiness rates.

During the transition to an expeditionary aerospace force, logistics challenges will be demanding because the USAF has relied solely on garrison-based logistics support since 1947. However, an examination of the U.S. Marines experience during the World War II fight for Guadalcanal will prove useful for building a future expeditionary logistics construct. Operation WATCHTOWER is germane to the USAF concept of expeditionary logistics because it will face a similar operational environment when conducting and sustaining its EAF concept. Furthermore, Operation WATCHTOWER validated the current principles of logistics and warfighting functions providing valuable lessons that the USAF can apply during its transformation from garrison-based operations to expeditionary operations.

¹⁴ Major Geoff Parkhurst, *ACC Maintenance Requirements Shortfall briefing*, slide 7.

Chapter 3

Operation WATCHTOWER: The Battle for Guadalcanal

Guadalcanal was the crucible. For both the United States and Japan, logistics was the critical element and the outcome came down to our ability to keep Guadalcanal resupplied and Japan's inability to do so.

—Alan Gropman, *The Big L: American Logistics in World War II*

Over the years, the Marines have become experts at supporting expeditionary operations abroad, pointing to Operation WATCHTOWER as the origin. Moreover, the effective American application of logistics was perhaps the single most important operational function that characterized the successful outcome of Operation WATCHTOWER. Consequently, this chapter will examine Operation WATCHTOWER in order to determine what logistics lessons were learned from that campaign and how they can be applied to the Air Force's current transformation to an expeditionary force. First, we will examine the American assessment of the strategic environment in the Pacific during World War II. Second, we will analyze the campaign concept of operations as it relates to logistics. Third, we will use the fundamental principles of logistics as criteria with which to evaluate American and Japanese performance. Finally, we will analyze the effectiveness of the Americans to integrate logistics with the other five warfighting functions including command and control, fires, intelligence, maneuver, and force protection.

Strategic environment

The historical context, political and military factors, and strategic and operational objectives defined the strategic environment in the Southwest Pacific during World War II. The American strategy in the Pacific was based on a fundamental decision by President Franklin D. Roosevelt, Prime Minister Winston S. Churchill, and their senior military staffs to conduct a “Germany first” campaign. As a result, the military strategy relied on a strategic defensive, tactical offensive campaign. On July 2, 1942, the Joint Chiefs of Staff ordered Allied forces in the Pacific to launch a limited offensive campaign designed to prevent a Japanese advance against the American lines of communication between the United States and Australia.¹⁵ The Army and Navy complicated the strategy with their own disparate views on how to conduct such a campaign. While the Army wanted to accumulate land bases in the Southwest Pacific to support a land and air campaign, the Navy wanted to launch a naval assault from the Central Pacific, supporting the fleet with an armada of escort and support vessels.¹⁶ After several lengthy Service debates over control of Pacific operations, the Army and Navy developed three tasks to divide the Pacific into geographical boundaries. Task One was to seize the islands of Santa Cruz and Tulagi, with Admiral Nimitz as commander. Task Two was to be to seize the Solomon Islands plus positions on New Guinea, with General MacArthur as commander. Task Three was the capture of the Japanese stronghold at Rabaul and adjacent bases in New Britain and New Ireland, with General MacArthur as commander.¹⁷ Specifically, the Task One boundary between the Southwest Pacific and South Pacific areas was moved west to longitude 159° East to

15 Frank O. Hough and Verle E. Ludwig, *Pearl Harbor to Guadalcanal: History of U.S. Marine Corps Operations in World War II* (Washington: Historical Branch, G-3 Division, Headquarters, U.S. Marine Corps, 1958), 236.

16 James A. Huston, *The Sinews of War: Army Logistics 1775-1953* (Washington D.C.: Center of Military History, 1988), 437.

include Tulagi, Guadalcanal, and the Florida Islands to maintain unity of command for the Navy.¹⁸ Conversely, the goal for Japan was to capture the lower Solomon Islands because the Japanese were prevented from taking New Guinea and the strategic harbor of Port Moresby during the Battle of Coral Sea.¹⁹

Campaign concept

The campaign concept for Operation WATCHTOWER was representative of American command relationships in the Southwest Pacific, American and Japanese operational centers of gravity and critical vulnerabilities, campaign objectives, campaign execution, and service contributions. The Navy dominated the organizational hierarchy for Operation WATCHTOWER with Vice Admiral Robert Ghormley, Commander South Pacific, Vice Admiral Frank Fletcher, Expeditionary Force Commander, Rear Admiral Richmond Turner, the Amphibious Force Commander, Rear Admiral Leigh Noyes, Carrier Forces Commander, and Rear Admiral John McCain, Shore-Based Aircraft Commander. The sole Marine commander was Major General Alexander Vandegrift, 1st Marine Division Commander.²⁰ Admiral Nimitz later replaced Admiral Ghormley with Admiral William Halsey and General Vandegrift with Lieutenant General Alexander Patch.

Throughout the Guadalcanal campaign, the American and Japanese operational centers of gravity were identical. Both operational centers of gravity were their armed forces. As such, both had identical critical capabilities, critical requirements, and critical vulnerabilities. Using

¹⁷ John Miller Jr. *Guadalcanal: The First Offensive* (Washington D.C.: Center of Military History, 1989), 13.

¹⁸ *Ibid.*, 17.

¹⁹ *Ibid.*, 5.

²⁰ Miller, 29.

Dr. Strange's CG-CC-CR-CV concept, American and Japanese air and naval power projection were critical capabilities and sea lines of communication and logistics were critical vulnerabilities.²¹ Consequently, the American military leadership determined the operational campaign objective was the island of Tulagi because the Japanese had a seaplane base and excellent naval facilities there and Guadalcanal because intelligence determined that the Japanese were in the process of building an airfield there.²² Operation WATCHTOWER would be the first Allied step towards a future assault against the Japanese stronghold of Rabaul.²³

Major logistical challenges were evident throughout the planning, embarkation, and initial amphibious assault. From the early planning stages, logisticians realized that an amphibious campaign at Guadalcanal and Tulagi would be difficult since they would have only a month to plan the campaign because of the requirement to surprise the Japanese. An additional concern included that the Allied ports in the region did not have the docks, labor and equipment to support a large amphibious operation. Unloading supplies and equipment at Guadalcanal would be difficult because only one ship could be unloaded at a time due to a small harbor area.²⁴ Exacerbating the problem was the loading of the transport ships in the United States. Each transport ship was administratively loaded instead of combat loaded for the trip to Aotea Quay, Wellington. At Aotea Quay, each of the ships had to be reloaded and re-embarked for the amphibious assault, expending hundreds of man-hours. During reloading, weather destroyed supply cartons that were sitting on the open docks, proving that Clausewitz's "friction" was

²¹ Dr. Joe Strange, *Perspectives on Warfighting, Centers of Gravity & Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language* (Virginia: Marine Corps University Foundation, 1996), 43.

²² *Ibid.*, 19.

²³ Hough, 237.

²⁴ Ronald H. Spector, *Eagle Against the Sun* (New York: The Free Press, 1985), 208.

present too. The assaults on Guadalcanal and Tulagi were initiated on August 7, 1942 with little resistance from the Japanese. However, the unloading of supplies and equipment was replete with errors. The lack of sufficient personnel and transportation contributed to a painfully slow unloading process. Consequently, the beach was laden with supplies vulnerable to enemy attack. During the next two days, Admiral Fletcher and Admiral Turner decided to withdraw their aircraft carriers and amphibious ships after it was determined a Japanese naval force was fast approaching towards Guadalcanal.²⁵ Now, General Vandegrift's forces were left without half their supplies and without any plans for resupply. The Americans would be forced to endure a brutal six-month campaign against the Japanese that would eventually end with Japanese withdrawal on January 31, 1943.

Joint logistics cooperation was marginal and was caused by the Services providing independent logistics support during Operation WATCHTOWER. The Navy delivered personnel, supplies, and equipment with its naval transport ships while the Marines moved supplies and equipment from the beachhead to the front lines. Additionally, there were numerous command and control conflicts between the shore commander and the landing force commander over the unloading and transportation of supplies that compounded the situation--conflicts that still exist today between the Navy and the Marine Corps. Only the Army displayed joint cooperation by forming a provisional port company and providing extra manpower to move supplies for the Navy and Marines.²⁶

²⁵ Miller, 78.

²⁶ Richard B. Frank, *Guadalcanal, The Definitive Account of the Landmark Battle* (New York: Penguin Books, 1990), 137.

Campaign analysis

This campaign analysis of the American victory at Guadalcanal will include a discussion on the execution of the fundamental principles of logistics-- *responsiveness, simplicity, flexibility, economy, attainability, sustainability,* and *survivability* and a discussion of the relationship between the warfighting function of *logistics* and the other five functions—*fires, intelligence, maneuver, force protection, and command & control.*

Responsiveness

Responsiveness defined the operational tempo for the entire campaign. Responsiveness means providing the right support in the right place at the right time.²⁷ The Americans were able to mobilize and deploy a large amphibious force consisting of over 19,000 men and 82 ships in less than 2 months.²⁸ The ability of the American forces to deploy and assault Guadalcanal before the Japanese had time to complete the airfield at Lunga Point was the turning point in the campaign because the Americans used the strategically important airfield to provide air cover and keep the supply lines open. The Japanese were totally surprised by this speed, leaving valuable supplies and equipment at Lunga airfield that significantly impacted the campaign.²⁹

The lesson for today's Air Force: The USAF logistics system will have to respond quickly and efficiently to support expeditionary operations. The USAF will no longer have the luxury of a six-month build-up phase prior to execution like they had during Operation DESERT

²⁷ Joint Pub 4-0, II-1.

²⁸ Miller, 59.

²⁹ Hough, 274.

SHIELD/DESERT STORM. Under the EAF concept, the supply chain pipeline will have to respond rapidly within 48 hours to support each AEF/AEW.

Simplicity

Clearly, the Japanese were more successful at achieving simplicity than the Americans during the campaign. American examples of simplicity were almost non-existent. The only example from American anecdotal evidence of simplicity occurred when aviation gas was running critically low during the middle of October. A Marine search discovered over 400 drums of gasoline, thus supplying the Americans with enough gas for two additional days of air operations.³⁰ However, the Japanese resorted to simplicity out of necessity. The Japanese moved almost 800 tons of supplies and heavy artillery pieces by hand, since they lacked motor transportation.³¹ Japanese soldiers built roads through dense jungles with axes, saws, and machetes since they did not possess road building equipment.³²

The lesson for today's Air Force: The USAF should be cautious before institutionalizing complex logistics processes. Clearly, future logistics support will rely on information technology to expedite logistics support between maintenance depots and AEFs/AEWs to generate the efficiencies required by a responsive logistics system. However, the USAF should not leverage its entire logistics processes on information technology. Training logistics personnel using manual procedures must be retained in case asymmetric attacks are successful at disrupting logistics systems.

³⁰ Miller, 151.

³¹ Ibid., 155.

³² Ibid., 151.

Economy and Flexibility

Both the principles of economy and flexibility significantly impacted the outcome of Operation WATCHTOWER. American economy and flexibility were displayed after Admiral Fletcher and Admiral Turner withdrew their naval fleet from Guadalcanal, immediately halting the unloading supplies and equipment for the Marines.³³ Despite this serious setback, the Marines relied on captured Japanese supplies and equipment and the Marines used these arms, ammunition, food, clothing, transportation, tools, and building materials.³⁴ The Marines were pleasantly surprised that Japanese food rations were even better than their own rations. The final captured supply count stood at 4 units of fire and at least 17 days of food.³⁵ Additionally, the Marines discovered and repaired twelve Japanese trucks to move supplies from the beachhead. To finish the airfield, the Marines used Japanese construction equipment, including 6 road rollers, 4 generators, 6 trucks, 50 handcarts, 75 shovels, explosives, and 2 gas-powered locomotives.³⁶ The Japanese equipment was critical for repairing the runway, since the Marines did not possess sufficient equipment to complete the runway.³⁷ The abandoned Japanese equipment and supplies was free and immediately ready for American use. Conversely, the Japanese failed at economy and flexibility. They attempted to supply their troops by dropping empty gasoline barrels filled with food in the water. Once the Japanese transports were close enough to Guadalcanal, they would dump the drums overboard where they would be pulled

³³Henry I. Shaw, *First Offensive: Marine Campaign Guadalcanal* (Washington D.C.: Marine Corps Historical Center, 1992), 12-13.

³⁴ Frank, 126.

³⁵ *Ibid.*, 127.

³⁶ *Ibid.*, 127.

³⁷ *Ibid.*, 127.

ashore. Over 20,000 drums were dropped, but only 30 percent of the drums were recovered by Japanese troops.³⁸

The lesson for today's Air Force: Economy and flexibility are absolutely essential during expeditionary operations. Long lines of communications between CONUS and OCONUS FOLs are vulnerable to disruption during the "fog" and "friction" of war. Consequently, the USAF must secure local host nation logistics support during expeditionary operations.

Attainability

The principle of attainability, providing "the minimum essential supplies and services required to begin combat operations" was handled poorly by both the Americans and the Japanese.³⁹ The Americans were not prepared for a lengthy campaign against the Japanese. Shortage of cargo space also meant the typical 90-day rations were reduced to a 60-day supply and ammunition requirements were reduced by at least 50 percent.⁴⁰ Lack of cargo space also prevented the Americans from deploying necessary transportation vehicles to move equipment and supplies from the beachhead to forward supply points.⁴¹ The lack of motor transportation was significant because the Marines could not move supplies from the beachhead to inland supply points.⁴² The Japanese were equally deficient at attainability. Japanese troops left behind a plethora of supplies and equipment for the Americans to use during the campaign. This critical error forced the Japanese to resort to manual labor during their combat operations.

³⁸ Miller, 230.

³⁹ Joint Pub 4-0, II-2.

⁴⁰ Miller, 48.

⁴¹ Ibid., 49.

⁴² Ibid., 103.

The lesson for today's Air Force: Attainability cannot be achieved if logistics planning is not consistent with operations planning. Current plans call for AEFs/AEWs to deploy for periods longer than those for which their support packages are designed. Specifically, while deployments are planned for 90-day rotations, current Mobility Readiness Spares Packages (MRSP) are built to support 30-day rotations forcing units to cannibalize aircraft parts prior to deployments to support 60 additional days of sustainment. Figure 1 indicates current cannibalization rates have increased by 4.4% since FY95. The USAF must reevaluate its current MRSP policy to support continuous 90-day rotations without requiring units to cannibalize parts.

Sustainability

The Americans were initially delinquent at logistics sustainability, but improved over the course of the campaign. Sustainability, "the ability to maintain logistics support to all users throughout the theater for the duration of the operation," is the most important principle because attrition warfare between two equally matched combatants is usually decided by sustainability. Prior to the assault on Guadalcanal and Tulagi, Marine and Navy planners did not calculate the amount of supplies and equipment required for an extended campaign.⁴³ For example, the 1st Marine Division did not provide plans for resupply during the first month of operations because they had no idea how long the campaign would last.⁴⁴ However, once fighter planes had arrived at Henderson Field, they were able to provide daytime combat air patrols for the destroyer transport ships arriving from forward supply depots at Espiritu Santo.⁴⁵ President Roosevelt made the most important decision of the campaign when he ordered the Joint Chiefs of Staff on October 24 to reinforce Guadalcanal with fresh troops, aircraft, and supplies despite competing

⁴³ Spector, 207.

⁴⁴ Miller, 103.

priorities in the European Theater.⁴⁶ Roosevelt had essentially decided that the Americans were not going to give up on Guadalcanal despite early setbacks. Conversely, the Japanese sustainability plans were initially effective, but deteriorated over the course of the campaign. The Japanese initiated the “Tokyo Express” using cruisers and destroyers to transport supplies and reinforcements up and down the slot to Guadalcanal every evening under cover of darkness.⁴⁷ However, the Japanese Army required at least 200 tons of provisions a day or 5 destroyer-loads per night, for a total of 150 loads a month. Over the course of a month, the “Tokyo Express” could only sustain 60 loads per month.⁴⁸ Clearly, a significant sustainment statistic is the number of transport ships lost by both sides. The Americans lost 1 transport, while the Japanese lost 13 transport ships.⁴⁹

The lesson for today’s Air Force: Operation WATCHTOWER proved the critical nature of logistics sustainability over the course of deployment planning and contingency operations. Although the USAF has done an excellent job of packaging aerospace capabilities within the EAF concept, EAF will not succeed without consistent, reliable strategic airlift and aerial refueling. Due to the increasing trend of having to provide strategic airlift and aerial refueling to multiple, simultaneous operations, the USAF must ensure Air Mobility Command (AMC) can sustain deployed AEFs/AEWs without interruption.

⁴⁵ Ibid., 104.

⁴⁶ Shaw, 40.

⁴⁷ Hough, 288.

⁴⁸ Frank, 408.

⁴⁹ Ibid., 601.

Survivability

Both the Americans and the Japanese neglected the principle of survivability during their logistics planning and execution. During the initial stages of the amphibious assault on Guadalcanal, the Americans failed to protect their supplies on the beachhead. However, the Japanese did not destroy American supplies when they had the opportunity to do so. During the Battle of Savo Island, Admiral Mikawa successfully destroyed four Allied cruisers, the American Navy's worst naval defeat. Then, instead of attacking the American beachhead laden with supplies and equipment, Admiral Mikawa decided to preserve his own force and left the battle to pursue American carriers at a later date.⁵⁰ The Japanese failure to destroy an American critical vulnerability was similar to the Argentina's failure to destroy British transport ships during the Battle of Falklands. Both examples demonstrated mistakes in defining and targeting the opponent's operational critical vulnerabilities. Furthermore, the Japanese also failed at survivability when Admiral Halsey successfully interdicted the "Tokyo Express" in November with his submarine fleet. Once the "Tokyo Express" was destroyed, the Japanese had almost no chance to defeat the Americans in Guadalcanal because Japanese forces could not survive without supplies.

The lesson for today's Air Force: The USAF needs to place more emphasis on survivability to ensure OCONUS FOLs remain operational throughout contingency operations. Recently, the Marine Corps developed doctrine that promotes survivability during expeditionary operations. Operational Maneuver From the Sea (OMFTS) utilizes sea-based logistics to support amphibious operations eliminating the requirement for a potentially vulnerable beachhead. Like the Marines,

⁵⁰ Strange, 65.

the USAF needs to codify its own doctrine to guarantee logistics support to the OCONUS FOL is survivable.

Like the principles of logistics, the synergy between logistics and the other five warfighting functions was essential to the American success in Guadalcanal. Why is synergy an important consideration? According to MCDP 1-2:

The conduct of a successful campaign requires the integration of many disparate efforts. Effective action in any single warfighting function is rarely decisive in and of itself. We obtain maximum impact when we harmonize all warfighting functions to accomplish the desired strategic objective in the shortest time possible and with minimal casualties.⁵¹

Furthermore, an analysis of the synergy between logistics and the warfighting functions during Operation WATCHTOWER will provide important fundamental lessons for future expeditionary operations.

Logistics and Command & Control

The combination of logistics and command and control was not effective particularly during the amphibious landing on Guadalcanal. The Tentative Landing Operations Manual defined amphibious responsibilities, but was vague on the responsibilities between the beach party and the shore party.⁵² A Navy officer commanded the beach party and a Marine landing force commander commanded the shore party. The beach party was primarily responsible for the unloading of supplies from amphibious craft and the shore party was responsible for the movement of supplies and equipment from the beachhead to the forward supply point.⁵³ Both were independent organizations and had few opportunities to practice or coordinate the

⁵¹ MCDP 1-2, *Campaigning*, 76.

⁵² Hough, 21.

⁵³ *Ibid.*, 20.

unloading of supplies and equipment prior to Guadalcanal contributing to tremendous confusion during the landing. Eventually, the debacle at Guadalcanal would contribute to Change 2 to FTP 167, combining beach and shore parties under the control of the shore party commander.⁵⁴

The lesson for today's Air Force: The poor integration of logistics and command and control during Operation WATCHTOWER provides the most important lesson for the USAF. Operation WATCHTOWER proved that doctrine must clearly delineate command relationships during logistics operations.

Logistics and Fires

The combination of logistics and fires was marginal for two reasons. First, General Vandegrift ordered a reduction of ammunition by 50%, since there was not enough cargo space to combat-load the entire division, significantly reducing his infantry firepower.⁵⁵ Second, the Marines could not transport their 105mm howitzers from the beach to their forward positions because they were landed separately from their prime movers.

The lesson for today's Air Force: Marine mistakes during Operation WATCHTOWER pointed out the importance of early deployment planning. Since strategic airlift is limited and expeditionary operations creates long lines of communications, deployment planning must be well coordinated between operators and logisticians to ensure a seamless transition occurs from deployment to sortie generation at the deployed location. Well executed load planning must occur to ensure aircraft maintenance personnel and aircraft launch support equipment arrive in time to regenerate aircraft within a 24 hour period.

⁵⁴ Ibid., 21.

⁵⁵ Miller, 48.

Logistics and Intelligence

Logistics and intelligence were integrated well during the planning phases of the amphibious assault. Since there was not an opportunity for the Americans to survey the islands prior to the invasions and there were no useful maps of Guadalcanal, intelligence on the islands was the responsibility of Colonel Frank B. Goettge, the intelligence officer for the 1st Marine Division. Colonel Goettge and his intelligence section interviewed former Soloman residents, civil servants, and merchant ship officers to determine appropriate landing areas for an amphibious assault and viable roads to transport supplies.⁵⁶

The lesson for today's Air Force: Operation WATCHTOWER proved that good intelligence and detailed site surveys are critical for establishing FOLs.

Logistics and Maneuver

The application of both logistics and maneuver was exceptional. The American decision to assault Guadalcanal and Tulagi in August, 1942 took the Japanese by complete surprise. The Japanese slow reaction to the seizure of Guadalcanal and its incomplete airfield, demonstrated the inability of the Japanese to cycle through their OODA loop faster than the Americans cycled through theirs. Although the American Navy and Marines were not adequately prepared for a major amphibious assault in August, the operational advantage of capturing and defending the airfield throughout the campaign was greater than the logistics operational flaws.

The lesson for today's Air Force: Like Operation WATCHTOWER, speed and maneuver will be required to quickly establish FOLs for the AEWs and AEFs in a short period of time to meet the 72 hour EAF objective criteria.

⁵⁶ Ibid., 43-45.

Logistics and Force Protection

Institutionalizing force protection within logistics operations is imperative because it is usually a critical vulnerability according to Dr. Strange's center of gravity model. Logistics and force protection was effective when General Vandegrift decided to land between the Tenaru and the Tenavatu Rivers east of the Lunga airfield. Vandegrift's foresight to land 6,000 yards east of the airfield was remarkable because he intended to use the rivers to protect each of his flanks against a Japanese counterattack while his men and supplies were coming ashore.⁵⁷ Force protection would have been easier if the Marines had built a new airfield in a good defensive location rather than capture the existing Japanese airfield in a poor location.

The lesson for today's Air Force: FOL site selection is critical to ensure the site is protectable. Continuous evaluation is essential and may necessitate a later move to ensure the continued ability to protect the force. Recently, the USAF employed this strategy when Khobar Towers was bombed in Dharhan killing 19 USAF airman prompting moving the base to Prince Sultan Air Base in a well defended location in Saudi Arabia.

Summary

More than any other warfighting function, the successful application of logistics during Operation WATCHTOWER proved decisive throughout the campaign. Although American logistics had its shortcomings, it was more effective than the Japanese system of logistics. Even more remarkable, was the ability of the Americans to sustain its forces over longer lines of communications than the Japanese while engaged in a two front war in the Pacific and European theaters. Most importantly, Operation WATCHTOWER serves as a valuable historical case

⁵⁷Ibid., 50-51.

study for the USAF EAF concept because expeditionary operations will be similar to those encountered at Tulagi and Guadalcanal. Individual AEFs and AEWs can expect to operate at bare base FOLs with long lines of communications. The critical lessons of the principles of logistics combined with the integration of logistics with command & control, fires, maneuver, intelligence, and force protection will be vital for successful operations requiring logistics processes that are fundamentally sound and well executed. Moreover, those critical lessons must be embedded within Logistics Transformation initiatives and attributes to remain relevant in an expeditionary environment.

Chapter 4

Logistics Transformation

Logistics is warfighting. Transforming logistics will enhance the performance of our ultimate customer, the Warfighter.

—Lieutenant General John Handy, DCS Installations & Logistics

Although Operation WATCHTOWER was the first in a series of several successful expeditionary campaigns during World War II, complying with fundamental principles of logistics and integrating all the warfighting functions remained a significant challenge for American logisticians during expeditionary operations. As the USAF has transitioned from a garrison-based force to an expeditionary-based force, the current logistics paradigm must change accordingly to avoid the same mistakes that were made during Operation WATCHTOWER. Headquarters USAF, Installation and Logistics (USAF/IL) has offered a potential solution with the introduction of Logistics Transformation. USAF/IL has chartered a Logistics Transformation Team (LTT) to assess the overall USAF logistics chain process to identify opportunities for value added change with a focus on improving support to the warfighter into the 21st century. This will discuss the background, methodology, approach, and an analysis of LT attributes.

Background

In 1999, USAF/IL chartered the LTT to develop innovative processes that were built on previous logistics concepts such as Lean Logistics and Agile Logistics. The purpose of LT is to reengineer fundamental logistics processes using current initiatives, military/commercial best practices, and enabling technologies that span current organizational and functional structures.⁵⁸ Specifically, LTT is tasked to manage system-level logistics, reengineer USAF overarching logistics system processes, identify current initiatives and opportunities to increase performance and optimize costs, and develop change implementation plans.⁵⁹ There are four assumptions for LT. First, LT must incorporate process improvements from a cross organizational perspective with organizations and people skills addressed as a function of process. Second, transformation will encompass a complete USAF look starting with the warfighter and working backwards. Third, transformation is not a manpower or money drill. Fourth, “best practices” will be adapted and tested before being implemented. Direction, oversight, and funding for LTT is provided by the Logistics Senior Steering Group (LSSG), chaired by the Assistant Deputy Chief of Staff for Installations and Logistics. The LSSG permanent membership includes the HQ USAF Directors of Maintenance, Supply, Transportation, and Logistics Planning; the Air Force Associate Deputy Assistant Secretary for Contracting; the Air Force Program Executive Officer for Logistics Information Systems; and, the Air Force Material Command Director of Logistics.⁶⁰ The LTT is designed on an integrated product team concept consisting of USAF membership, industry representation, and academic representation providing functional expertise as shown in Figure 2.

⁵⁸ HQ USAF LTT, *A Vision for Air Force Logistics Draft*, 3.

⁵⁹ HQ USAF LTT, *Master Program Plan*, 4-5.

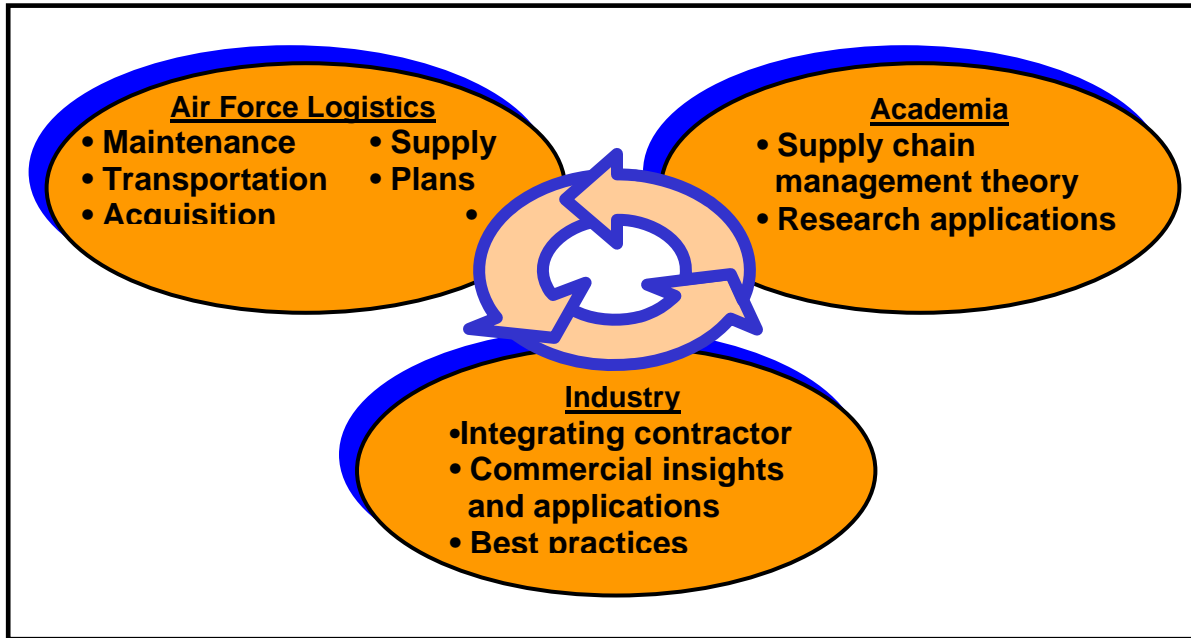


Figure 2. Logistics Transformation Team Structure

Currently, the LTT is composed of USAF functional logistics experts; industry facilitators from KPMG, Dynamics Research Corporation, and Computer Sciences Corporation; and academic consultants from MIT and Ohio State University. Per “*USAF LTT Change Management Plan*”, LTT efforts are designed to create a 21st century logistics system characterized by the following attributes including: *Sustainable “World Class” Performance, End to End Focus, Customer/Product Focus, Process Oriented, Balancing Performance and Cost, Command and Control, and Flexibility* as shown in Figure 3.⁶¹

⁶⁰ HQ USAF LTT, *A Vision for Air Force Logistics Draft*, 4.

⁶¹ HQ USAF LTT, *Change Management Plan*, 5

AF Logistics System Attributes

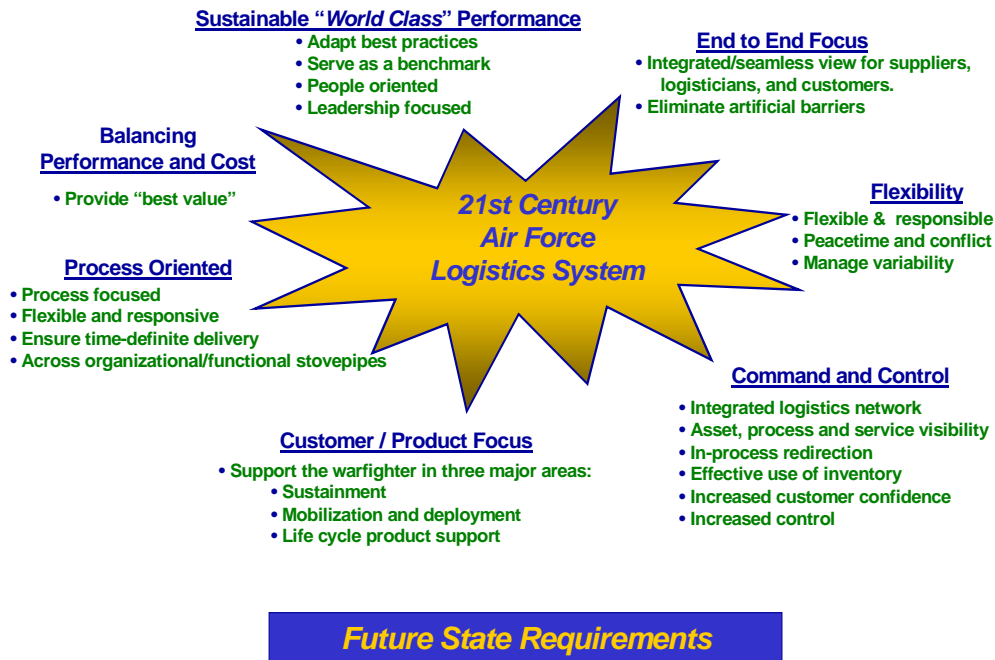


Figure 3. The Attributes of the 21st Century Logistics System

Methodology

The LTT methodology is designed on similar commercial logistics reengineering initiatives consisting of four primary phases conducted over a five-year period. According to the “USAF LTT Master Program Plan”, these phases are:

Phase I - Logistics System Blueprinting

Logistics System Blueprinting is designed to create a high level consensus on the Air Force Logistics Transformation Vision and to provide guidelines on the characteristics of the “future state” logistics system. The Blueprint is used to focus subsequent solutions development efforts on those areas of the Air Force logistics system that require the most immediate attention,

have the highest impact on overall system performance, and/or undergo the most change during the overall transformation initiative.

Phase II – Solutions Development

During this phase of the methodology, the LTT will begin to translate desired “to-be” characteristics identified by the logistics system blueprint into potential solution sets. The “future state vision” will be used to support the identification, assessment, and evaluation of high impact solution sets designed to transform the current Air Force logistics system. Key elements of Solutions Development include:

Diagnostics – Upon completion of blueprinting and visioning activities, targeted diagnostics within the logistics system are used to identify potential operational and performance improvements. These diagnostics are based on recognition and application of both public and private sector best practices to ensure that the logistics system transformation is optimized in four key areas:

People – Includes all elements of the human resource environment, including individual and corporate skills, organizational structure and organizational culture.

Process – Includes logistics system operating methods and practices, along with the policies and procedures that are pertinent to the performance and oversight of activities.

Technology – Includes enabling information systems, applications and associated data tools for suppliers, logisticians and end users.

Infrastructure – Infrastructure is intended to represent the physical foundation of the logistics system, and includes physical network structure, facilities and outsourcing relationships.

Analysis – Diagnostics are accompanied by various cost, network, and inventory-based analytical efforts designed to permit the analysis of the current state logistics system and potential solution sets from a variety of deployment, sustainment and contingency perspectives:

Cost Analysis – Cost analysis will be utilized to determine baseline costs associated with the cost of operating the current state Air Force logistics system. In this context, cost analysis will be used to identify major operations cost drivers, cost reduction opportunities, and resource requirements.

Network Analysis – Network analysis will be used in efforts to determine least cost / best service logistics systems through the use of network optimization models. Applications may include warehouse location strategies, reengineered maintenance processes and revised inventory deployment strategies.

Inventory Analysis – Inventory analysis focuses on developing a model of organization inventory levels and distribution mechanisms, with emphasis on development of cost and service models.

In combination, these various elements of the transformation methodology permit the targeting and consideration of people, process, technology, and infrastructure improvement initiatives consistent with the desired end-state of the Air Force logistics system. The expected duration of Phases I and II is twelve months combined. Implementation and integration of selected initiatives will form the basis for Phases III and IV of the methodology.

Phase III – Strategy Formulation

During this phase, the LTT will perform the “campaign planning” associated with integrating and planning the implementation of the selected logistics system improvement initiatives. Detailed implementation plans are developed, along with feedback and associated tracking mechanisms. Where appropriate, iterative diagnostics and analysis efforts will be

performed to refine selected transformation initiatives in order to ensure system optimization. Pilot sites will be identified for initial rollout of transformed capabilities, with emphasis placed on the incorporation of lessons learned into the overall implementation strategy. Expected duration of this phase is eight to twelve months, depending on the nature and scope of selected transformation initiatives.

Phase IV – Implementation

During this phase, the LTT will serve a Logistics Transformation “program office” function. Primary actions will involve the coordination of various logistics transformation initiatives across multiple Air Force organizations and functional activities.⁶²

Approach

During Phase I, Logistics System Blue Printing, the LTT will formulate a strategic vision using materials such as DoD Joint Forces, USAF, and Functional references; DoD and USAF senior leadership interviews; KPMG’s QuickScan Process; and Focus Area Identification. KPMG’s Quick Scan is a prescriptive tool that identifies and examines key logistics system issues through detailed questions and database analysis of potential solutions.⁶³ Figure 4 illustrates how the LTT will collect and synthesize such materials into a strategic vision and subsequent focus areas.

⁶² HQ USAF LTT, *Master Program Plan*, 7-9.

⁶³ *Ibid.*, 13.

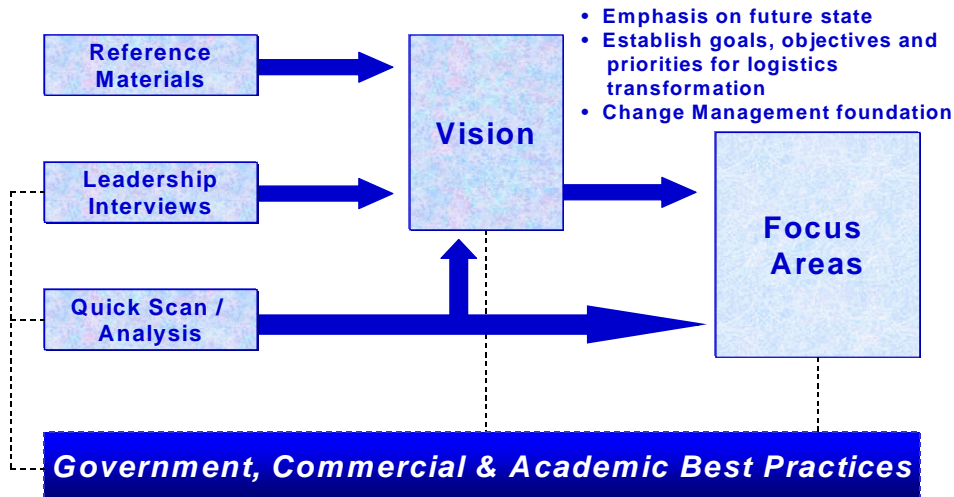


Figure 4. Logistics System Blueprinting⁶⁴

During Phase II, LTT will concentrate on transforming the current logistics state to the desired “future state” USAF logistics system using focus area diagnostics and analysis. The diagnostic and analysis approach will consist of initial problem identification, problem downselect, solution set evaluation, and solution selection. A flowchart process will determine the location and priority of opportunities to improve performance. The process will also determine performance improvements and comprehensive solutions.⁶⁵ The focus of Phase III, Strategy Formulation, will be on tactical planning for resource requirement, timing, and specific solution sets. Phase IV, Implementation, will constitute approximately 70% of the total project time. LTT will serve as a

⁶⁴ Ibid., 11.

⁶⁵ Ibid., 16.

“Program Office” in this capacity serving as a management office with strategic oversight of LT initiatives.

LT Attribute analysis

LT is an innovative concept of reengineering traditional logistics processes that will form the foundation of USAF logistics throughout the 21st century. However, will the attributes of LT create a future logistics endstate that is fundamentally sound according to the principles of logistics? Analysis will highlight strengths and weaknesses of LT attributes as they relate to the principles of logistics and the lessons of Operation WATCHTOWER.

Sustainable “World Class” Performance & Balancing Performance and Cost

Operation WATCHTOWER proved logistics sustainability and responsiveness were essential to the American victory. LT’s attribute of *Sustainable “World Class” Performance* attempts to satisfy both principles by capitalizing on the strengths of government, commercial, and academic best practices. In concert with *Sustainable “World Class” Performance, Balancing Performance and Cost* will provide “best value” services that meet or exceed customer requirements at an affordable cost to the taxpayer. It will maximize the efficiency of individual logistics activities while optimizing these processes within a newly transformed USAF logistics system serving as the benchmark for all comparable logistics support providers. Commercial performance improvement ranges for companies implementing supply chain management techniques are staggering. For companies implementing supply chain management in the private sector, performance improvements included a 16-28% increase in delivery performance; a 25-60% inventory reduction; and a 30-50% increase in order fulfillment cycle time. In the public sector, for the Army, CONUS order and ship time decreased 60% and an

OCONUS order and ship time decrease of 47%, and a repair cycle time improvement of 35% for implementing supply chain management procedures. For the Navy, targeted programs see a return of investment of 2:1, while increasing the mean time between failure by 8:1.⁶⁶

Despite many promising achievements in logistics performance, both *Sustainable “World Class” Performance* and *Balancing Performance and Cost* fail to emphasize force protection and survivability and the costs associated with institutionalizing both within logistics processes. *Sustainable “World Class” Performance* and *Balancing Performance and Cost* may be commercially efficient and cost effective, but the logistics processes may not be survivable in a military environment. The rationale for such an assertion is Dr. Strange’s CG-CC-CR-CV analysis. His center of gravity formula will typically identify logistics as a potential critical vulnerability. During Operation WATCHTOWER, logistics was the American critical vulnerability, yet the Japanese failed to attack logistics on the beaches of Guadalcanal. A massive, concentrated Japanese attack on the Guadalcanal beachhead during the first day of the assault could have changed the outcome of the battle. Future USAF LT planning must institutionalize survivability and force protection within all logistics processes to reduce similar vulnerability in future fights. Many commercial best practices are efficient because force protection and survivability are not relevant issues within the commercial world. Survivability generally increases costs and decreases efficiency because it requires building redundant processes to protect legacy logistics systems. Therefore, the *Sustainable “World Class” Performance* and *Balancing Performance & Cost* attributes should be changed to *Sustainable and Survivable “World Class” Performance* to ensure the focus remains on force protection and survivability. Obviously, performance and cost are important factors, but the LTT must

⁶⁶ HQ USAF LTT, *Air Force Logistics Transformation IL Orientation*, slide 12.

complete a cost benefit analysis to include survivability and as a variable of a logistics time, distance, and cost matrix.

Customer Product Focus, Process Oriented & End to End Focus

Customer Product Focus, *Process Oriented*, and *End to End Focus* attributes specifically target product and process responsiveness to the warfighter. A *Customer Product Focus* will tailor its support for the warfighter through sustainment of aerospace operations, mobilization and deployment of military assets throughout the spectrum of conflict, and life cycle product support of major weapons systems. The *Process Oriented* attribute ensures logistics processes are focused, flexible, and responsive. Processes must ensure time-definite delivery across organizational and functional stovepipes. The *End to End Focus* attribute will attempt to integrate suppliers, logisticians, and customers into a seamless system by eliminating artificial barriers, which restrict the flow of products, services, and data through the logistics pipeline.⁶⁷ Two Operation WATCHTOWER events are learning points for the USAF. First, the Navy and the Marines expended numerous extra man-hours when each of the transport ships were not combat loaded from the United States forcing them to reload and reembark equipment and supplies prior to the amphibious landing. Second, key transportation vehicles were not located in close proximity to artillery, equipment, and supplies. The USAF must ensure its AEWs and AEFs composed of strategic airlift, tactical aircraft, support equipment, and supplies are well planned and synchronized with timely, sustained follow-on support. As such, the attribute, *Warfighter & Expeditionary Focused* should replace *Customer Product Focus*, *Process Oriented*, and *End to End Focus* attributes because it effectively captures the essence of future USAF expeditionary operations in a single attribute. *Warfighter & Expeditionary Focused*

⁶⁷Ibid., slide 12.

defines support and sustainment of the warfighter by seamlessly integrating suppliers and warfighters in an expeditionary environment.

Command and Control

The objective of the attribute of *Command and Control* is to provide an integrated logistics network with asset, process, and service visibility. Command and control systems will have the ability for in-process redirection of inventory with increased customer confidence and control for the warfighters.⁶⁸ Future legacy systems include the Joint Information Distributed Information System (JDIS) incorporating communication interfaces such as the Global Command and Control System (GCCS), Integrated Maintenance Data System (IMDS), Automated Identification Technology (AIT), and Joint Decision Support Tools (JDST). Although the *Command and Control* attribute adequately addresses the use of information technology within logistics processes, it does not address organizational issues as it relates to command relationships within the EAF. Operation WATCHTOWER proved command relationships should have been clearly delineated to prevent confusion between the beach party and the shore party prior to the amphibious landing. To incorporate this lesson learned, the USAF should employ *Functional Command and Control* to streamline its current organizational objective wing structure to reorganize organic and intermediate aircraft maintenance functions under the control of the Logistics Group commander whose responsibility is to control all logistics functions. Under the current USAF objective wing structure, aircraft maintenance functions are split between the Operations Group and the Logistics Group creating unity of command problems with respect to aircraft maintenance issues.

⁶⁸ Ibid., slide 12.

Flexibility

Flexibility is a LTT attribute that is also a fundamental principle of logistics. *Flexibility* will not have to be identified as a separate attribute because it enables the other LT attributes. Nevertheless, Operation WATCHTOWER proved that the ability to adapt and respond to changing conditions caused by the “fog” and “friction” of war proved key during expeditionary operations. The American ability to utilize existing Japanese equipment and supplies that they did not have prior to the campaign proved definitive. Hence, the USAF must assume that strategic airlift can not provide all logistics support for the AEWs and AEFs because of lengthy supply pipelines from CONUS bases to overseas FOLs. Furthermore, poor weather or non-mission capable airlift could delay essential equipment and supplies at worldwide airbases. Consequently, the USAF will have to rely either on host-nation logistics support or a maritime prepositioning fleet to successfully sustain its EAF consistently.

Chapter 5

Conclusions

We must focus our effort on developing the process, the structure, the procedures and most importantly the mindset to be expeditionary.

—General Michael E. Ryan, USAF Chief of Staff

A thorough analysis of a projected LT endstate in Chapter Four requires that the current attributes be revised to reflect a seamless, integrated relationship between the warfighter and expeditionary operations. Accordingly, I recommend that LT be focused on the following three core attributes: *Warfighter & Expeditionary Focused, Sustained and Survivable “World Class” Performance*, and *Functional Command and Control*. Additionally, the LTT should include logisticians from sister services and from the Defense Logistics Agency with the primary objective of reevaluating single-service logistics support in Joint Pub 4-0, Doctrine for Logistic Support of Joint Operations.⁶⁹ Currently, each Service is responsible for the logistics support of its own forces, except when logistic support is otherwise provided for by agreements with national agencies or allies, or by assignments to common, joint, or cross-servicing. Furthermore, LT should be developed as a joint logistics transformation concept because future contingency operations will be conducted as a joint or combined operations. Initiatives such as joint logistics

⁶⁹ Joint Pub 4-0, *Doctrine for Logistic Support of Joint Operations*, I-7.

centers, joint regional repair centers, and joint prepositioning ships are potential opportunities. Eventually, a Joint Force Logistics Commander billet should be formalized with the responsibility of controlling the logistics battlespace, much like the position Lieutenant General William G. Pagonis held as Central Command's top logistician during Operation Desert Storm.⁷⁰

The USAF vision of "Global Engagement" requires an Air Force that is light, lethal, and expeditionary to remain relevant throughout the 21st century. Operation ALLIED FORCE in Kosovo and Operations NORTHERN WATCH and SOUTHERN WATCH in Southwest Asia have validated this EAF concept. But they did not provide all the lessons required to fully refine LT. Operation WATCHTOWER helps to fill that gap.

Using Operation WATCHTOWER as a template for USAF Logistics Transformation is relevant for two reasons. First, Operation WATCHTOWER was the first modern day expeditionary operation for the Marines. The USAF is entering new territory and can use the Marine Corps' extensive expeditionary experience during Operation WATCHTOWER as a guide for its own expeditionary operations. Second, the Americans achieved a successful outcome despite long lines of communications because they applied the principles of logistics and integrated the warfighting functions more effectively than the Japanese did. Likewise, the USAF must ensure LT mutually supports the EAF concept of logistics. The principles of logistics and the combination of logistics and the other warfighting functions must be validated against LT attributes to ensure LT will effectively support USAF expeditionary operations. Although LT initiatives can not directly impact manpower and equipment shortfalls identified in Chapter Two, LT must revamp logistics processes to reduce FOL setup time and improve expeditionary sustainment.

⁷⁰ Michael R. Gordon and General Bernard E. Trainor, *The Generals' War* (New York: Little, Brown and Company, 1995), 402.

The concept of reengineering traditional logistics processes is innovative and challenging, yet, the USAF should be careful not to completely leverage logistics doctrine on “commercial only” best practices without keeping its processes focused on the warfighter. Often, new initiatives like LT become popular at the headquarters level because of the potential for significant manpower cuts or huge dollar savings. Traditional military logistics processes are notoriously redundant and complex, but effective during the “fog” and “friction” of war. Logistics Transformation must ensure there is a proper balance between commercial efficiency and military effectiveness. Most importantly, the USAF must not forget that Logistics Transformation is not the final solution to all the logistics challenges in the 21st century. Martin Van Creveld correctly stated in *Supplying War*, “...it sometimes appears that the logistic aspect of war is nothing but an endless series of difficulties succeeding each other. Problems constantly appear, grow, merge, are handed forward and backward, are solved and dissolved only to reappear in a different guise.”⁷¹ The USAF must remember that Logistics Transformation will not solve all the logistics challenges in the 21st century, but rather it is part of an endless process to continually improve support to the warfighter in the field.

⁷¹ Martin van Creveld, *Supplying War* (New York: Cambridge University Press, 1977), 231.

Glossary

AB	Air Base
ACS	Agile Combat Support
ACC	Air Combat Command
AEF	Aerospace Expeditionary Force
AEW	Aerospace Expeditionary Wing
AFB	Air Force Base
AIT	Automated Identification Technology
AMC	Air Mobility Command
AOR	Area of Responsibility
CC	Critical Capability
CG	Center of Gravity
CINC	Commander in Chief
CONUS	Continental United States
CR	Critical Requirement
CSC	Command and Staff College
CSL	CONUS Support Location
CV	Critical Vulnerability
DOD	Department of Defense
EAF	Expeditionary Aerospace Force
FOL	Forward Operating Location
FSL	Forward Support Location
GCCS	Global Command and Control System
IL	Installation & Logistics
IMDS	Integrated Maintenance Data System
JDIS	Joint Information Distributed Information System
JDST	Joint Decision Support Tools
LT	Logistics Transformation
LTT	Logistics Transformation Team
MAGTF	Marine Air-Ground Task Force
MPF	Marine Prepositioning Force
MRSP	Mobility Readiness Spares Package
MTW	Major Theater War
OCONUS	Outside the Continental United States
OMFTS	Operational Maneuver From the Sea
OODA	Observe, Orient, Decide, Act
SHOP	Self-contained Hardfloor Operating Platform
USMC	United States Marine Corps
USAF	United States Air Force

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