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Towards Reengineering the United States Department of Defense: A Financial Case for a Functionally-Aligned, Unified Military Structure

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TOWARDS REENGINEERING THE UNITED STATES DEPARTMENT OF DEFENSE: A FINANCIAL CASE FOR A FUNCTIONALLY-ALIGNED, UNIFIED MILITARY STRUCTURE

THESIS

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Abstract

This research examined the potential financial and non-financial benefits of working towards reengineering the Department of Defense (DoD) through the adaptation of a functionally-aligned, unified organizational structure. Based on historical analysis of the DoD's current structure, a proposed DoD structure is presented that aligns operational functions under functional corps and support functions under existing defense-wide agencies and field activities. An analysis of overlapping functionality between services provided the basis for quantitative analysis of size-of-force and budget request data for Fiscal Year 2013 (FY2013). This analysis enabled the comparison of operational efficiency between services. These rates were used to benchmark operational efficiency across the DoD. An estimate of savings for each function was assessed by comparing the actual budget request for FY2013 against the estimated budget request under the proposed structure. Through sensitivity analysis, estimated savings from these functional areas ranged between $7 Billion and $100 Billion for FY2013. Analysis of existing literature highlighted non-financial implications of adopting a functionally-aligned, unified DoD structure. Recommendations for future research include the need for an Activity-Based Costing and Budgeting system to identify actual costs of DoD functions.

Soli Deo Gloria

To my beautiful family. I am blessed beyond measure to journey through this life with you. Thank you for reflecting Christ's love and extending His grace to me daily. I am humbled to be your husband and father.

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TOWARDS REENGINEERING THE UNITED STATES DEPARTMENT OF DEFENSE: A FINANCIAL CASE FOR A FUNCTIONALLY-ALIGNED, UNIFIED MILITARY STRUCTURE

I. Introduction

Background

The United States Government (USG) currently faces a fiscally-unbalanced environment. In the 15 seconds it took to type this sentence, the federal debt grew another $400,000 USD (US National Debt Clock). Representing approximately 17 percent of the USG's $3.8 Trillion USD in outlays for fiscal year (FY) 2014, the Department of Defense (DoD) can either be part of the budgetary problem or contribute to the fiscal solution (National Priorities Project). Recently, the inability of Congress to pass a deliberate budget resulted in the implementation of sequestration measures. These measures indiscriminately cut 10 percent from most USG departments, to include the DoD. Sequestration seeks to reduce spending across USG programs, regardless of the program's operating efficiency. Essentially, sequestration is a stop-gap measure to temporarily address symptoms of an inefficient system. However, as Michael Hammer and James Champy explain in their book, *Reengineering the Corporation*, to affect lasting change, organizations must fundamentally rethink business operations; they must reengineer processes (Hammer & Champy, 1993).

The need to reengineer the current DoD structure, and the processes inherent within, goes beyond fiscal considerations. The USG budgetary situation is a real and present threat to America's national security. The ability of the DoD to maintain an

effective force, capable of executing the National Security Strategy, is contingent upon a federal budget that resources all required military functions. According to the DoD's FY 2013 Budget Proposal, these requirements resulted in a defense budget request of $526.2 Billion USD. This budget request is an assemblage of inputs through the Planning, Programming, Budgeting, and Execution System (PPBES) process by which military services identify requirements, which military departments translate into budget requests that are consolidated and submitted by the DoD.

Currently, the DoD is aligned by departments: Army, Navy, and Air Force; and services: Army, Navy, Marine Corps, and Air Force. These services are resourced to organize, train, and equip forces to provide certain functional capability to combatant commanders (Figure 1, DoD Organizational Structure).

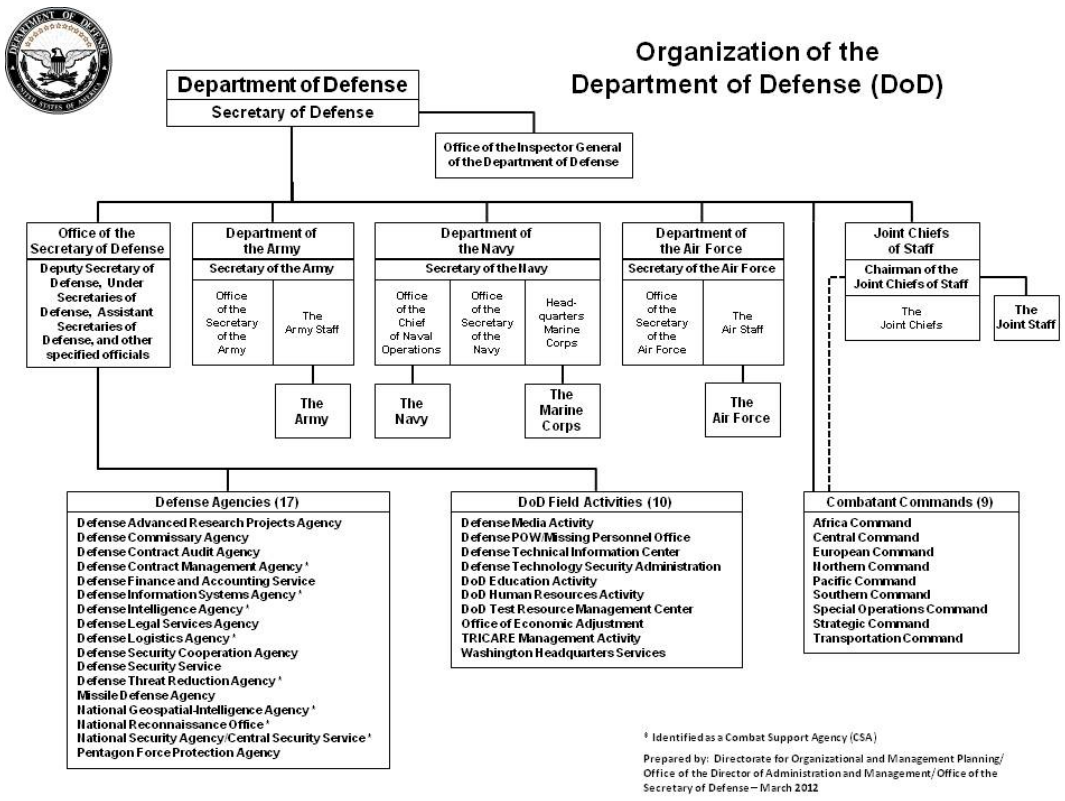

Figure 1. DoD Organizational Structure (Organization and Management Planning)

Title 10, US Code, defines the role of the military by department and service. DoD Directive (DODD) 5100.01, *Functions of the Department of Defense and Its Major Components*, provides amplifying guidance on the functions of military departments and services. To be clear, although the terms role, mission, function, and process are often used interchangeably, the terms are not synonymous. The term *role* is defined by the 2009 Quadrennial Roles and Missions Review (QRM) Report as:

> Role: The broad and enduring purposes for which the Services…were established by law. (QRM Report, 2009:4)

Additionally, Joint Publication (JP) 1-02, *Department of Defense Dictionary of Military and Associated Terms*, defines *mission* and *function* as follows:

> Mission: The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. (Joint Publication 1-02, 2010:183)

> Function: The broad, general, and enduring role for which an organization is designed, equipped, and trained. (Joint Publication 1-02, 2010:115)

Hammer & Champy define *process* as follows:

> Process: A collection of activities that takes one or more kinds of input and creates an output that is of value to the customer. (Hammer & Champy, 1993: 38)

The distinction between processes and functions, especially with regard to reengineering, is an important one. The fundamental difference is one of customer focus. This distinction will be discussed in greater detail at the end of Chapter 2.

A synopsis of department and service functions, as defined in DODD 5100.01, is attached in Appendix 1. This synopsis highlights the degree of functional overlap between military components. Of note, this functional overlap exists in spite of DoD direction for Secretaries of the Military Departments to:

> Coordinate with the other Military Departments and all of the other DoD Components to provide for more effective, efficient, and economical administration; ***eliminate duplication***; and assist other DoD Components in the accomplishment of their respective functions…(***Emphasis Added***) (DODD 5100.01, Enclosure 6, 2010; 26)

To eliminate duplication, functions must be clearly defined and apportioned between services. In an organization as big and complex as the DoD, this becomes extremely challenging. One approach to reducing duplication is through military service unification.

Current DoD attempts at service unification focus on joint-basing initiatives at the tactical and operational level and unified combatant commands at the strategic level. Joint basing efforts pair bases from different services that are geographically proximate and consolidates base-level support functions. In addition to joint basing, under the purview of the Unified Command Plan (UCP), the DoD operates three functional combatant commands: US Transportation Command (USTRANSCOM), US Strategic Command (USSTRATCOM), and US Special Forces Command (USSOCOM) and six geographic combatant commands: US Pacific Command (USPACOM), US European Command (USEUCOM), US Southern Command (USSOUTHCOM), US Central Command (USCENTCOM), US Northern Command (USNORTHCOM), and US Africa Command (USAFRICOM). However, the DoD does not organize, train, nor equip forces to perform functions jointly; they simply execute functional missions under a joint purview.

Problem Statement

The current service-based DoD structure is functionally redundant and fiscally inefficient. Working towards reengineering the DoD, by adopting a functionally-aligned structure, may reduce the DoD's fiscal footprint.

Research Objectives/Investigative Questions

The objective of this research is to assess the potential fiscal savings of the DoD reengineering towards a functionally-aligned, unified structure. To accomplish this, a thorough evaluation of the current DoD budget request is required. This assessment must examine which functions each military service provides to combatant commanders and at what price. Special consideration shall be given to areas of overlapping functionality. Understanding the current structure provides a springboard by which to examine alternative structural designs. In this vein, the research gives consideration to countries that have adopted a unified, functionally-aligned military structure in addition to proposed models for the US DoD. Finally, given a modified military structure, this study assesses non-financial benefits that the DoD might realize, should it reengineer. To address the objective of this thesis, three investigative questions (IQ) are posed:

IQ 1. What functional areas overlap between military services?
IQ 2. Could the DoD reduce its budget requests by adopting a functionally-aligned, unified structure?
IQ 3. What are the non-financial implications of a functionally-aligned, unified structure?

Research Focus

This research primarily examines current and proposed DoD organizational structures from a fiscal perspective. The impetus for this research stems from the current

USG fiscal challenges. As highlighted in Chapter 2, most research on the topic of implementing a functionally-aligned unified military is theoretical, arguing the perceived merits and concerns of reorganizing the current DoD structure. Very little quantitative research exists on the fiscal savings of such a reorganizational effort. The complexity and immensity of the current DoD structure and budget request process, issues that will be addressed separately in following chapters, limits the scope of this research to a macro-level focus. This study does not analyze every role, mission, and function performed by the DoD. Nor does it account for every dollar the DoD spends, or requests, in each fiscal year. Instead, this research examines the core functions of military departments and services and the budget requests to provide these functions. The study focuses on the DoD's Budget Request for one fiscal year, FY2013. The organizational changes proposed in this study are not intended as detailed blueprints for DoD reengineering. Instead, the research should be viewed as an azimuth by which future discussions, research, and decisions might be based.

Methodology

This research is supported by three legs: 1) Qualitative content analysis of overlapping functions by military service and non-financial benefits of a functionally-aligned force structure 2) Quantitative assessment of the size of force provided by function, by service and 3) Quantitative analysis of budget requests associated with each function, by service. Content analysis of Title 10 USC, DODD 5100.01, other joint publications, and related academic literature provides a framework of overlapping military service functions. Content analysis of existing literature provides a register of

non-financial benefits to reengineering the DoD under a unified, functionally-aligned organizational structure. Quantitative size-of-force data is collected from service budget justification books, service and joint factsheets, and related academic literature. Quantitative budget data is collected from the DoD's FY2013 Budget Request. By comparing budget requests per function by service, in like size-of-force units, the research identifies the lowest budget request by function between services. This baseline per-function figure is benchmarked across all services to form a baseline fiscal savings figure over the current DoD structure.

Assumptions/Limitations

The vast extent of this research inherently increases the number and scope of assumptions made. First, it is assumed that the data provided within the FY13 DoD Budget Proposal is accurate and representative of actual resource expenditures. Second, without a sole source document on size-of-force data, it is assumed that the conglomerated data accurately represents the current force. Third, in analyzing military structures from other countries, it is assumed that a similar structure could be scaled up to the US DoD. Fourth, the non-financial benefits presented in response to IQ 3 are feasible and valid. Finally, and perhaps must fundamentally, it is assumed that the methodology for this research will provide meaningful estimates of potential fiscal savings. In theory, comparing average price per unit of function provided is a valid approach to assessing fiscal savings, in practice; fiscal savings may be elusive in an organization as vast as the DoD.

Likewise, the scope of the research problem yields several limitations. First, the link between the functions provided by military services and the budget requests associated with those functions is not always clear. While the DoD utilizes Budget Activity Codes (BAC) to appropriate funds to specific functions, these codes vary by service for the same function. The accuracy of the analysis is limited to by the correct interpretation of BACs and the functions they represent. Second, this study is limited in scope to macro-level core service functions and associated budget requests. The fiscal savings presented represent an order of magnitude estimate, not precise financial figures. Finally, the research does not address the political, social, and cultural issues that would inherently arise from such a dramatic change from the current DoD structure.

Implications

This research will open lines of dialogue for discussing the roles, missions, functions, and processes of the DoD's military services. Additionally, this research will highlight areas of overlapping functionality within the DoD. This overlapping functionality drives associated budget requests. By analyzing these budget requests and proposing a revised DoD organizational structure to reduce them, the study may allow the DoD to realize significant fiscal savings in the long run. These long run fiscal savings may provide options to DoD leaders that desire to move beyond addressing the symptoms of an inefficient system to reengineering the system itself.

Summary

Sequestration, civilian furloughs, and potential diminishing force capabilities are symptoms of an inefficient DoD structure in a fiscally-constrained USG environment.

This study addresses the current service-based DoD structure, which is functionally redundant and fiscally inefficient. Working towards reengineering through adopting a functionally-aligned, unified organization, may reduce the DoD's fiscal footprint. The Literature Review in the next chapter provides a historical perspective on the current DoD structure, assesses current literature relating to functionally-aligned unified military structures, and discusses the concept of reengineering and its application to the DoD. Chapter 3 details the methodology by which the functions, size of force, and budget data from different services merge to form a comprehensive fiscal analysis of the current DoD structure. Chapter 4 presents the results of the analysis as they relate to the three IQs. Finally, conclusions from analysis of the results are presented, to include recommendations for future research and use within the DoD.

II. Literature Review

Overview

A review of existing literature on the topic is structured in three sections. First, a review of the history behind the current DoD organizational structure to include the US Constitution, the National Security Act of 1947, and the Goldwater-Nichols Act of 1986. Second, an appraisal of current unified force structures in use by other countries and an examination of proposed models for the DoD. Finally, a review of methodologies used to estimate the effectiveness of organizational reengineering.

History

Constitution of the United States

On July 4, 1776, the First Continental Congress approved final edits to a document that shaped history as few documents have done before or since. The Declaration of Independence, although not signed by members of Congress until August 2, 1776, was born that day; and with it, radical ideas on freedom, liberty, and democracy that have since shaped the world (The Charters of Freedom). The Declaration was a line in the proverbial sand of English tyrannical rule. It summarized "self-evident truths" by presenting before the world a list of grievances against the King. It was the impetus for a war of independence and the guiding light that led a fledgling country to freedom. 11 years later, a second, equally important, but fundamentally different, document was penned by members of the Constitutional Convention—the Constitution of the United States. The Declaration of Independence was, in the terminology of Hammer & Champy, a "case for action." It defined where the country stood and why it could no longer remain

there. The Constitution was a "vision document," detailing what the country must become. (Hammer & Champy, 1993).

Adopted on September 17, 1787, the Constitution was eventually ratified by conventions in eleven states before taking effect on March 4, 1789 (The Charters of Freedom, 2013). The primary objective of the document was to clearly define the role of the central government in the affairs of states and in the lives of individual citizens. The Constitution, as with most important documents, was written out of necessity. If the United States was to become a truly unified country, it required a firm foundation on which to build a "more perfect union." Of primary importance to this research is Article One, Section Eight: Powers of Congress.

Under Section Eight, the powers enumerated to congress are established. These powers include several pertaining to the establishment and organization of a military. Specifically:

> The Congress shall have power …
>
> To raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years;
>
> To provide and maintain a Navy;
>
> To make Rules for the Government and Regulation of the land and naval Forces;
>
> To provide for calling forth the Militia to execute the Laws of the Union, suppress Insurrections and repel Invasions;
>
> To provide for ***organizing***, arming, and disciplining, the Militia, and for governing such Part of them as may be employed in the Service of the United States, reserving to the States respectively, the Appointment of the Officers, and the Authority of training the Militia according to the discipline prescribed by Congress; (Constitution of the United States, Article 1, Section 8)

Understanding the need for a "common defence," Congress retained the power to form an Army and a Navy. Congress also understood the need to organize military forces in such a way that they might be effectively employed in service to the United States. The organization of the US Military, both at present, and over the past 226 years is rooted in these articles. The first major organizational step for the US Military was the establishment of the War Department.

While the Continental Army was formed in 1775, the War Department wasn't formally established until 1789 (Keskel, 2002). In 1798, in response to the advancement of naval capability in the late 18th century, Congress established the Department of the Navy. Keskel points to this act, the creation of separate military departments with Presidential-appointed, cabinet-level, positions to oversee different functional military operations, as the birth of service parochialism (Keskel, 2002).

After the American Civil War, President Grant made an ill-fated attempt at re-organizing the War and Navy Departments. As a war fighter, Grant recognizing the need for clarity of command, and proposed legislation to provide such. Politically, the idea was not salient and little change resulted (Leffler & Ward, 1992).

The outcome of the Spanish-American War was marred by the inability of the Army and Navy to work together. In response, President McKinley appointed a commission to investigate the root causes. The commission recommended the creation of the general staff of the Army and the Navy. However, these staffs proved to be largely ineffective because neither had the power to influence the efforts of the other. Nevertheless, this structure remained in place for nearly 50 years (Leffler & Ward, 1992).

In reflection upon the fateful events of December 7, 1941, President Truman remarked:

> The tragedy was as much the result of the inadequate military system which provided for no unified military command, either in the field or in Washington, as it was any personal failure of the Army or Navy commander. (Truman, 1956: 46)

Though ultimately successful, America's efforts in World War II were severally hampered by combat operations in two major theaters, led by strong military leaders in both services, competing for scarce resources. As the war progressed, the friction created by competition for resources under a disjointed command structure mounted. This friction was especially strong in the Pacific Theater under the leadership of General Douglas MacArthur and Admiral Chester Nimitz (Leffler & Ward, 1992). Their inter-service competition threatened to undermine the entire war effort. President Truman noted:

> We must never fight another war the way that we fought the last two. I have the feeling that if the Army and Navy had fought our enemies as hard as they fought each other, the war would have ended much earlier. (Congressional Research Services, 2013: 3)

Eventually, a unified command structure emerged in the European Theater under the command of General Eisenhower. However, no such unity was ever achieved in the Pacific (Leffler & Ward, 1992). At the close of the war, in an attempt to formalize command structures in future wars, President Truman argued for the creation of a unified defense department, citing excessive military spending and inter-service rivalry (Hogan, 2000). The concept of "unity of command," was adopted under the Outline Command Plan of 1946 (Congressional Research Services, 2013). This plan outlined seven separate

and distinct geographic commands and was the framework for the DoD's current UCP. The next year, Congress passed the National Security Act of 1947.

National Security Act of 1947

Signed into law on July 26, 1947, the National Security Act of 1947 contained sweeping defense reform. The major impacts of the act were the creation of: the National Military Establishment (NME); the U.S. Air Force as a separate, but equal, military service; the Department of The Air Force as a separate, but equal, military department; the office of the Secretary of Defense (SECDEF); and the Unified Combatant Command (UCC) structure. The UCC essentially established a single commander who would have direct command authority over all forces (land, sea, or air) assigned to his theater under a unified command (CRS, 2013). These unified commands would be established by the Joint Chiefs of Staff (JCS) subject to approval by the President and the Secretary of Defense.

The National Security Act of 1947 gave legal standing for the Secretary of Defense to command and the JCS to conduct joint strategic planning for all U.S. military forces. At the urging of the first SECDEF, James Forrestal, the act was amended in 1949 to solidify the subordination of all services to the NME (Quinn, 1993). To emphasize this point, the amendment changed the name of the NME to the DoD, emphasizing the department's executive power. A contributing factor to these amendments was the Key West and Newport Agreements of 1948. The Newport Agreement clarified the term "primary mission," which in later years was used to delineate the different functions of each military service (Eilon & Lyon, 2010). The Key West Agreement, among other

things, attempted to resolve the debate over the responsibilities of each service (Keskel, 2002). The agreements ended in further compromise with results that were:

> …ambiguous in service roles, and redundancy in service functions, which build higher costs into the very heart of the US defense establishment. (Blechman, 1993: np)

Collectively, the Key West and Newport Agreements, along with the 1949 amendments to the National Security Act provided the backbone for DoDD 5100.1 (Eilon & Lyon, 2010). The evolution of DoDD 5100.1 (now DoDD 5100.01) coincides with major reorganization efforts of the DoD as depicted in Figure 2. Historical Changes to DoDD 5100.1.

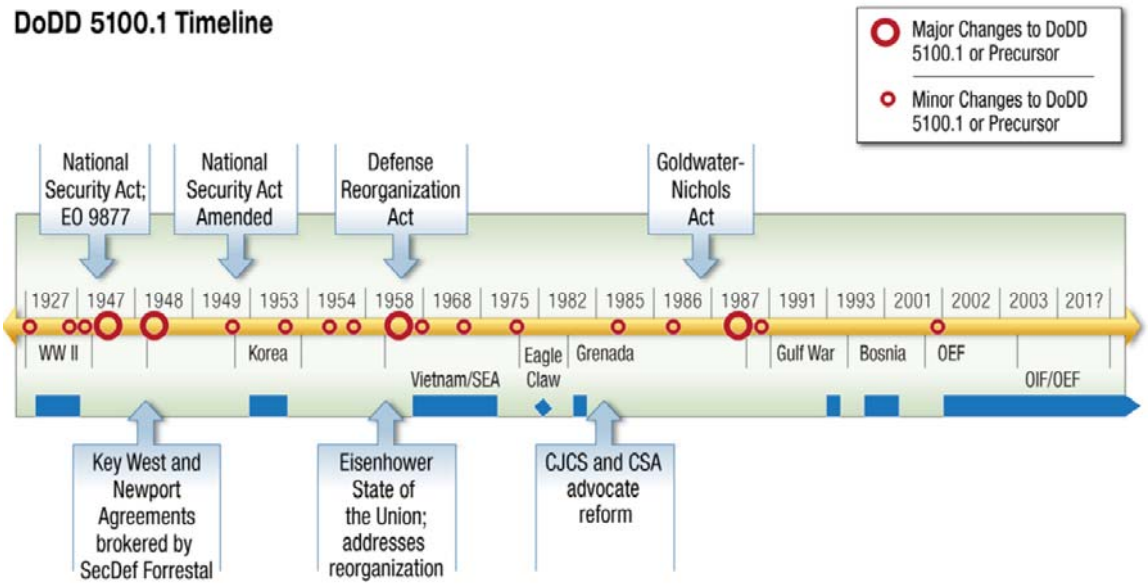

Figure 2. Historical Changes to DODD 5100.1 (Eilon & Lyon, 2010:32)

Following the Korean War, President Eisenhower pushed for further reform of the DoD structure under the Defense Reorganization Act of 1958. The President articulated the need for a more unified and streamlined chain of command and the need to completely unite air, sea, and land combat forces. The means by which President

Eisenhower sought to accomplish such reform was by moving the JCS out from underneath the Secretary of Defense in the operational chain of command and thorough the establishment of unified or specified commands that were assigned specific functional missions (Congressional Research Services, 2013). These two objectives were synchronous:

> Commanders of both the unified and specified commands now took their orders directly on the authority of the President or the Secretary, and the CINCs were delegated full 'operational command' over forces assigned to them. (Quinn, 1993: 72)

In the years following the Vietnam War, three incidents shaped the need for further defense organization reform: Desert One—the failed rescue of Iranian hostage by U.S. Special Forces in 1980, the bombing of the Marine battalion headquarters building in Lebanon of 1983, and the problem-riddled invasion of Grenada, also in 1983 (Quinn, 1993). Collectively, these events highlighted the awkward and divided command arrangements created through undue parochial service interests. Each of these incidents seemed to result from a failure of joint command and control, from the overly balanced apportionment of missions between services, or from a refusal by the services to cooperate with one another within that chain (Quinn, 1993). According to a staff report by the Senate Armed Services Committee in 1985, the causal factors of these events were summarized as such:

> Unity of command and the assignment of appropriately-skilled personnel to the mission - and thus its chances for success - were perceived to have been sacrificed in order to satisfy parochial service considerations. (Defense Organization, 1985: 86)

Goldwater-Nichols Act of 1986

Defense organizational reform came in the form of the Goldwater-Nichols Act of 1986. The act sought to bring about a renewed emphasis on "jointness" in Congress and within the DoD. According to former Assistant Secretary of Defense for Special Operations, James R. Locher III, the act sought to resolve nine major problems plaguing the DoD (Locher, 2001).

First, there existed an imbalance between service and joint interests. Supported by their respective JCS, the services yielded a great degree of power over the unified commanders they were supposed to be supporting. Then Chairman of the JCS, General David Jones, assembled a Chairman's Special Study Group on this issue. The group's findings included:

> The problem is one of balance. A certain amount of service independence is healthy and desirable, but the balance now favors the parochial interests of the services too much, and the larger needs of the nation's defense too little. (Chairman's Special Study Group, 1982: 54)

Second, the JCS was not providing political leaders with the advisement they required. Inter-service rivalry slowed or halted progress on key issues brought before the JCS. When common ground could be found on such issues, the compromised solution often diminished the value of information provided. Prior SECDEF, James Schlesinger, offered a scathing criticism of the ineffectiveness of the JCS during this time period:

> The proffered advice is generally irrelevant, normally unread, and almost always disregarded. (Congress, Senate, Committee on Armed Services, 1983: 187)

Third, joint-duty was viewed as a career-killing assignment by many military officers. Overbearing military services often kept very close tabs on "their" officers assigned to joint staff assignments, limiting their effectiveness to operate under a joint

purview. These officers were often more concerned with their exit strategy from the joint staff then the job they were placed there to accomplish.

Fourth, operational chains of commands were confused and cumbersome. Although the JCS did not fall within the operational chain of command (since the Defense Reorganization Act of 1958) they often acted as if they did, adding undue and unnecessary influence to the unified command process. Further, unified commanders often faced what they called "the wall of the component," where individual services held the reigns of their forces assigned to unified commanders, essentially limiting the effectiveness of those forces to carry out their missions. Political scientist Samuel Huntington observed:

> Each service continues to exercise great autonomy. … Unified commands are not really commands, and they certainly aren't unified. (Hunington, 1984: 24)

Fifth, strategic planning at the Pentagon was largely ineffective. With so much attention focused on infighting between the JCS, unified commanders, and services, little time or attention was left for long-range planning.

Sixth, numerous DoD-level agencies, such as the Defense Logistics Agency (DLA) and the Defense Intelligence Agency (DIA) had been created since the 1940s. These agencies were designed to provide common support to all DoD components. However, the agencies lacked the mechanisms and oversight required to control them and effectively utilize their available resources.

Seventh, although the National Security Act of 1947 specified the role of the SECDEF, the role of the service secretaries had never been clearly defined. Often

viewed as a politically sensitive topic, the relationship between the SECDEF and the service secretaries was largely unspecified.

Eighth, unnecessary duplication plagued the military department headquarters. With separate staffs for the secretary and the service chief, each service was burdened with redundancy.

Finally, there was at this time a problem with congressional micromanagement. Perhaps, acting out of necessity because of the ineffectiveness and inefficiency of the DoD to coordinate its internal actions, Congress found itself making tactical level decisions that should have been made by the services. Senator Samuel Nunn, one of the driving forces behind the Goldwater-Nichols Act commented:

> Last year [1984], Congress changed the number of smoke grenade launchers and muzzle boresights the Army requested. We directed the Navy to pare back its request for parachute flares, practice bombs, and passenger vehicles. Congress specified that the Air Force should cut its request for garbage trucks, street cleaners, and scoop loaders. This is a bit ridiculous. (Congress, Senate, Senator Nunn, 1985: 25350-4)

Signed into law on October 1, 1986 the Goldwater-Nichols Act enacted sweeping changes across the DoD. According to Lindsay Eilon and Jack Lyon, authors of an OSD white paper on the evolution of DoDD 5100.1, the changes fell into three broad categories:

> *Empowered the CJCS*—The Chairman became the principal military advisor to the President and Secretary of Defense. The Organization of the Joint Chiefs of Staff and the Joint Staff were also placed under the Chairman's exclusive direction, and the position of Vice Chairman of the Joint Chiefs of Staff was created. This considerably reduced the role and influence of the Service Chiefs. (Eilon & Lyon, 2010: 20)
>
> *Empowered the Combatant Commands/ Commanders*—Functions previously held by the Military Services were transferred to them. (Eilon & Lyon, 2010: 20)

> *Increased and improved jointness and efficiency among the Services—* The U.S. Military has been coordinating joint actions for centuries…the Goldwater-Nichols Act sought to legislatively solidify and improve upon the most successful practices for the conduct of joint operations in the future. (Eilon & Lyon, 2010: 20, 23)

Present

In the years following the passage of Goldwater-Nichols, the US military continues to struggle with merging operational forces from different services into a coherent joint force. Perhaps the most striking example of the lack of service interoperability was the shooting down of an Army Blackhawk helicopter by a US Air Force F-15 during Operation Provide Comfort in Northern Iraq in 1994 (Keskel, 2002). Despite tragic events like the fratricide of 1994, defense organizational reform has made little progress in the past two decades.

Secretary of Defense Donald Rumsfeld attempted to introduce reorganizational measures on the heels of the 2001 Quadrennial Defense Review (QDR):

> Secretary Rumsfeld did make a valiant effort at transformation. On September 10, 2001, he laid out a major initiative to restructure the military. He announced an effort to reduce headquarters staff by 15 percent and rid the Pentagon of overlapping bureaucracy that he said was a serious threat, to the security of the United States of America. Ironically, the very next day, on 11 September 2001, terrorists attacked America by hijacking commercial airliners and crashing them into the World Trade Center and the Pentagon. Suddenly, all the bickering and debates vanished, and the nation was united in a new war on terrorism. (Keskel, 2002: viii)

Although organizational reform took a back seat to the Global War on Terrorism in the days, weeks, and months following 11 September 2001, Secretary Rumsfeld understood the critical importance of restructuring the DoD when he commented in a memorandum dated 17 September 2002 that:

> The war on terrorism does not supplant the need to transform the DOD; instead, we must accelerate our organizational, operational, business, and process reforms. (Rumsfeld, 2002: np)

As military operations in Iraq and Afghanistan waged on for the next decade, defense reorganization received little attention. However, in the past two years the US has withdrawn from Iraq and is planning the complete withdrawal from Afghanistan. The DoD now faces force reductions commensurate with its reduced overseas commitment. As the US attempts to reduce its fiscal footprint while still maintaining a capable force, reorganization of the DoD is worthy of consideration. The following section evaluates existing and proposed unified force structure models that may serve as a jumping off point for DoD reorganization.

Unified Force Structure Models

Existing National Models – Canada

In 1968 Canada moved to a unified military construct to resolve overlapping functionality issues at the strategic level (Milberry, 1984). Under this construct, military components are functionally delineated under a unified command structure (Figure 3, Canadian Unified Command Structure).

In his Army War College paper on the topic, Lieutenant Colonel George Boucher states that Canada was the first major power to reform its military under a total unification organizational structure (Boucher, 1975). Unification, in this case, involved both the integration and merger of the three services and their activities. In 1963, a Royal Commission noted the triplication of efforts between the Army, Navy, and Air Force in areas such as recruiting, information, finance, and intelligence. The redundancy, along

with a modern reliance on joint operations and unseemly rivalries between services, provided the impetus for reform. The emphasis of the reform was on cost savings. As Canada's all-volunteer force matured and career opportunities increased, personnel costs increased to the highest per capita in the world (Boucher, 1975). These manpower costs cut into funds previously dedicated to modernization of equipment, reducing military operational capability. Canada was at a tipping point and military service unification seemed to be the means by which to balance the fiscal scales. As Canadian Minister of National Defense, Paul Hellyer, argued:

> Either the defense budget had to be substantially increased or substantial cost reductions had to be made. Otherwise, funds would simply not be available for the capital expenditures that are essential to effective military forces. (Hellyer, 1966: 10)

In addition to fiscal savings, when presenting the merits of the then-proposed restructure, Hellyer also stated:

> The amalgamation...will provide the flexibility to enable Canada to meet in the most effective manner the military requirements of the future. It will also establish Canada as an unquestionable leader in the field of military organization. (Milberry, 1984: 367)

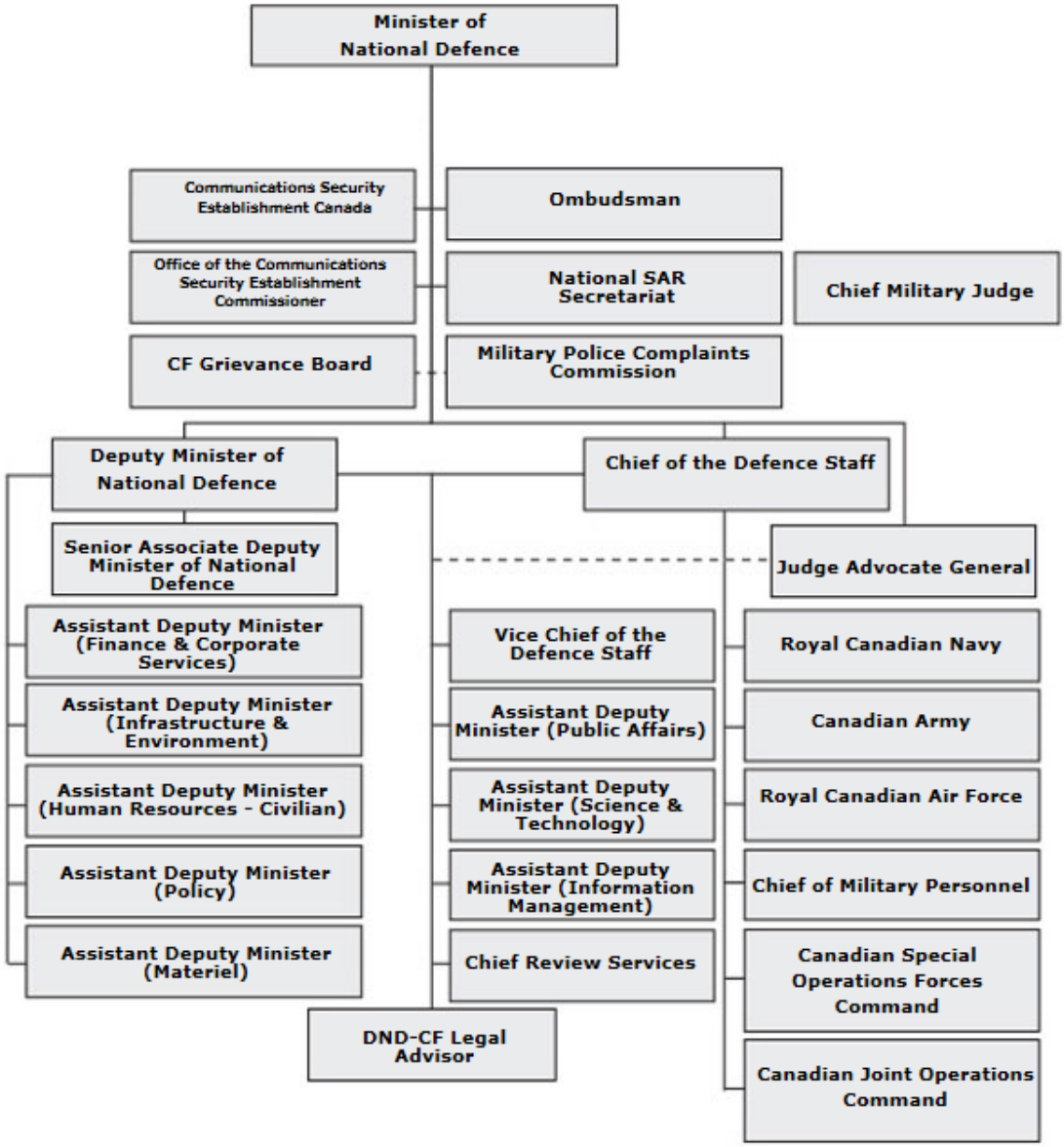

Figure 3. Canadian Unified Military Structure (National Defence)

Boucher concludes his paper by examining the feasibility of the US adopting a unified military organizational structure similar to Canada's. While many of the motives behind unification are salient in the US, namely the need to reduce fiscal expenditures and functional redundancy, Boucher points to several reasons why the adoption of the Canadian model may not be feasible. First, in 1975, the size of the Canadian military

was only 3% of the US military. Extrapolating the same methodology to a much larger force may be unachievable. Second, different political environments may be prohibitive. Canadian legislators in the early 1960s were open to the integration and merger of forces. Similar legislation in the US has been met with criticism. The US, by in large, is content with the existing military services structure and does not want to entertain the idea of merging services. Instead, any unification efforts to date have occurred through an overarching joint staff structure to integrate actions between the firmly-rooted services. Finally, the adversarial service parochial environment of the US military is a reflection of American culture. In much the same way that it takes two lawyers to settle an argument in a courtroom, it takes disagreement between more than one service chief to reach correct military decisions (Boucher, 1975).

Singapore

Unlike Canada, Singapore established a unified military structure from the outset upon declaring independence from Britain in 1965 (Singapore MINDEF). Figure 4, Structure of the Singapore Armed Forces, delineates this structure. While visually similar to the US DoD organizational chart, the difference lies in the role of the services. All air functions belong to the Air Force, all land functions belong to the Army, all sea functions belong to the Navy. Functional areas are clearly defined and everyone works for a single Chief of Defence Force, not their respective service chief. The result is a military that has been described as "one of the best forces in Southeast Asia, well-trained and well-armed." (Keegan, 1983: 520)

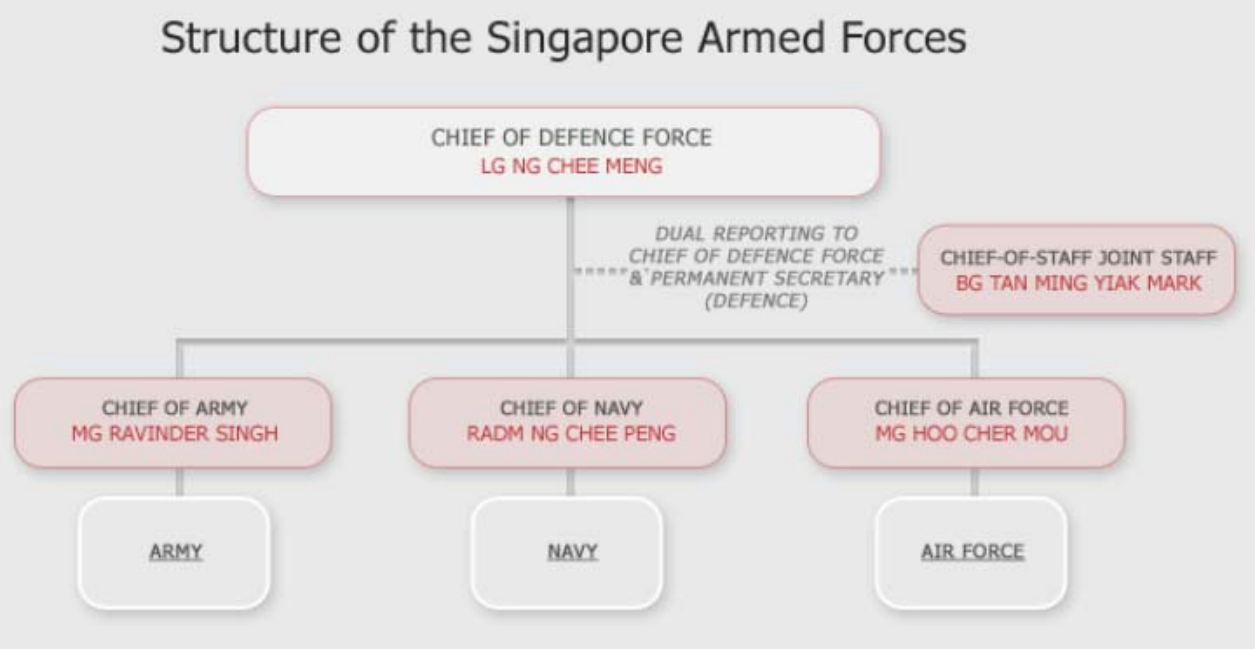

Figure 4. Structure of the Singapore Armed Forces (Singapore MINDEF)

Britain

Former Leader of Britain's Labor Party, Denis Healy, aptly described military organizational reform in his country when he wrote that:

> Trying to change the British Defence bureaucracy is as difficult as trying to perform an appendix operation on a man while he is carrying a grand piano upstairs. (Seib, 1984: np)

Despite the arduous challenge, Britain was able to accomplish sweeping defense reform as it reorganized its military structure in the 1980s. Spurred by public outcry over growing defense budgets, an overwhelming need for "jointness," and streamlined policy making efforts, a Ministry of Defence Organizational Review was convened in 1984. The review articulated the reality that every modern day military operation is conducted jointly; therefore, the military should be organized in such a way as to reflect this reality (Pagan, 2003). The review recommended the elimination of its service ministers (akin to US service secretaries) and other senior posts and the formation of a combined Ministry

of State Staff. Although Britain retained separate services, each with its own identity, the power and influence of the services were significantly diminished as compared to the power and influence of the US services.

In the closing paragraphs of his US Army War College paper, Colonel Hector Pagan acknowledges the difficulty in extrapolating the British experience to the current US military organizational structure. The number of personnel, missions, equipment, and infrastructure of the US military makes it a unique entity.

Proposed Models for the DoD

In his Air War College paper entitled, *Doing Things That Can't Be Done: Creating an New Defense Establishment*, Colonel Kenneth Keskel highlights several flaws to the current DoD organizational structure before proposing an alternative structure.

According to Keskel, the current DoD structure harbors three primary defects:

> First, the organization bureaucracy has grown so large that it has become inefficient. Second, service parochialism has grown from a positive motivator to an Achilles' heel, creating duplication of effort and misguided priorities. Third, it is ill equipped to respond to the growing need to work with joint, interagency, and coalition partners. (Keskel, 2002: 3)

To address these defects, Keskel argues for an organizational structure that supports emerging missions, is within fiscal constraints, and improves "jointness" to accomplish objectives in accordance with national security guidance.

To accomplish these objectives, he suggests delineating the "tooth" from the "tail" of the services. The "tooth" refers to the core warfighting competencies of the services. Colonel Keskel argues that these functions should be functionally re-aligned

among smaller, more flexible corps (Air Corps, Naval Corps, Army Corps, etc.). The "tail" refers to the support forces that sustain the services' teeth. He suggests these functions should be consolidated under a joint support force (Figure 5. Keskel's Proposed DoD Restructure). Keskel proposes six steps towards a reorganized DoD:

(1) Step One: Streamline overhead. Eliminate the three service secretary staffs and transfer their functions up to OSD and realign down to the military departments.

(2) Step Two: Reduce layers. Transition and consolidate service-specific three-star level commands into standing joint task forces.

(3) Step Three: Change mindset. Establish a joint promotion system.

(4) Step Four: Reduce duplication. Consolidate the numerous defense and service support agencies performing similar functions into single agencies.

(5) Step Five: Increase flexibility. Transform the current military departments that contain both "tooth" and "tail" to smaller, more flexible "corps" focused on core competencies (tooth), and establish a joint support force (tail) to augment these warfighting corps.

(6) Step Six: Adapt concepts. Modify the combatant command concept to better meet the future spectrum of conflict. (Keskel, 2002: 35-36)

Keskel estimates four primary benefits of implementing such a structure. First, the corps would be able to focus, exclusively, on their core competencies. Second, functional duplication between services would be greatly reduced. Third, this structure offers much greater flexibility to the combatant commander. Finally, interoperability between forces and operating systems would be greatly enhanced.

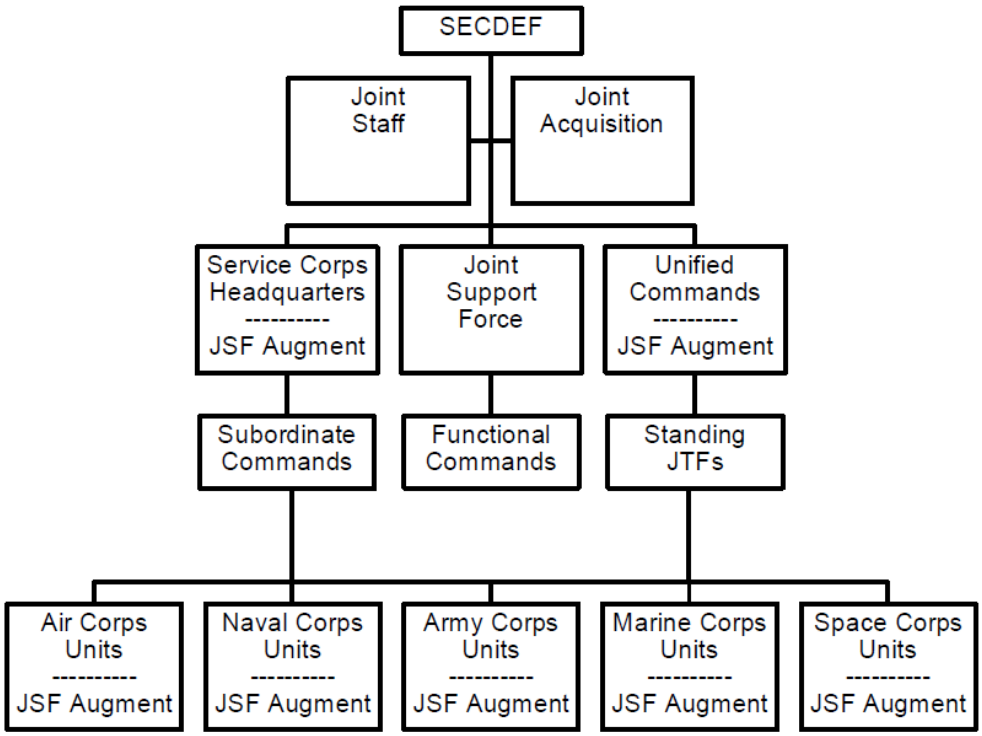

Figure 5. Keskel's Proposed DoD Restructure (Keskel, 2002)

Colonel Leonard Kaplan proposes another alternative organizational structure for the DoD in his paper, *A Single Unified U.S. Military—A Modest Proposal.* Kaplan suggests the elimination of services and their staffs. He argues that the job of organizing, training, and equipping forces should fall to the combatant commander since they will be the ones to employ those forces in combat. Each combatant command would have air, land, sea, and special operations forces assigned and functionally partitioned.

Under Kaplan's proposed structure, he argues for a greater role of DoD-level defense agencies. Each agency currently provides a functional service to the DoD. By allowing the Defense Intelligence Agency to coordinate all intelligence functions, the Defense Logistics Agency to coordinate all logistics operations, the Defense Information

Systems Agency to coordinate all communication actions, etc. the DoD will significantly streamline its operations.

The benefits of such a structure are summarized by the author:

> The entire process would be streamlined since the CINCs would have the predominant input into satisfying their warfighting needs currently and in the future. The coordination needed for decisions would be reduced, there would be much less parochialism and in-fighting, and the planning, programming, and budgeting system would be streamlined. Efficiency should be greatly improved. (Kaplan, 1993: 15)

Kaplan ends his paper by presenting several arguments against a unified military structure. The first argument raised is one of tradition. The Army and Navy have histories dating back over two hundred years. The culture of the services is firmly rooted in the DoD, veterans organizations, and the American public. Second, Kaplan points out that just as iron sharpens iron, so may service in-fighting enhance our military strength. The US Government is built upon checks and balances. Since the US Military is a reflection of the government it serves, should not checks and balances exist with the DoD as well? Finally, Kaplan gives consideration to the potential concern of vesting too much power in any one general. Under a unified command structure, one general would have authority over the entire DoD and its forces. This general would still serve under the control of civilian leadership, but the potential for a rogue general increase under a unified structure.

In his Naval Postgraduate School paper, *Toward a New Strategic Framework: A Unified Command Plan for the New World Order*, Captain John Quinn proposes another alternative to the current DoD organizational structure. Quinn's research is focused on the Unified Command Plan (UCP), its roots and evolution, and the impact of service in-

fighting on how we execute warfare today. To counter the influence of the services, Quinn proposes a completely restructured hierarchical UCP framework.

Quinn cites Samuel Huntington's view of organization of command (Huntington, 1984). Huntington calls for the establishment of:

> Mission commands, not area commands. The current structure of unified and specified commands thus often tends to unify things that should not be unified and to divide things that should be under single command. (Huntington, 1984: 251)

In keeping with this philosophy, Quinn articulates the need for a UCP framework by which to overcome inter-service problems and ensure the combat effectiveness of forces:

> To ensure success at the outset of hostilities requires a complete restructuring that starts from the top - the structure of the Unified Command Plan - and builds down with a conscious goal of meeting the operational needs of the CinC and limiting (or eliminating) the deleterious impact of the service components on joint war fighting. (Quinn, 1993: 120-121)

Specifically, Quinn proposes a UCP framework consisting of three Theater, two Area, and five Forces Commands as follows:

> (1) European *Theater* Command - includes projected in-theater forces in Europe and the Mediterranean.
>
> (2) Northeast Asia *Theater* Command - includes projected in-theater forces in Korea, Japan, and Okinawa.
>
> (3) Southwest Asia *Theater* Command - includes in-theater forces plus training/traditional relationship with either the Rapid Deployment/Contingency Force or the Mobilization/Reinforcing Forces Command.
>
> (4) Atlantic *Area* Command - includes the Atlantic Expeditionary/Early Reinforcing Forces Command.
>
> (5) Pacific *Area* Command - includes the Pacific Expeditionary/Early Reinforcing Forces Command.

(6) Rapid Deployment *Forces* Command - includes XVIII Corps HQ (serving as a JTF HQ), the 82nd Airborne, 101st Air Assault, and 10th Mountain Divisions, the 23rd Wing, and Marine Air Contingency Force units.

(7) Reinforcing *Forces* Command - includes 'one of a kind' air units and the partially-manned and mobilization air, sea, and land forces that comprise the nation's conventional 'strategic reserve'.

(8) Strategic Deterrence and Defense *Forces* Command (STRATCOM).

(9) Strategic Transportation *Forces* Command (TRANSCOM).

(10) Special Operations *Forces* Command (SOCOM). (Quinn, 1993: 156-157)

According to the author, the benefits of such a framework are threefold. First, it provides theater commanders, whom are charged with executing military operations, greater flexibility and more forces. Second, it delineates UCP boundaries at sea, where they are more easily de-conflicted. Finally, it allows for the flexible employment of forces to accomplish strategic objectives. By retaining a worldwide focus, the JCS would be able to apportion forces where they are most needed.

Lieutenant Colonel Edward Martignetti also proposes revision to the UCP in his Army Command and General Staff College paper entitled, *Déjà vu: The Unified Command Plan of the Future Revisited.* Martignetti argues for a complete revision of the UCP based on functional missions versus the current regional construct.

According to Martignetti, the role of the UCP is to align available military resources to tasks requisite to accomplish the NSS and NMS. He argues that the existing UCP is not structured to ensure efficient operations across the entire national security establishment. Due to cultural, philosophical, doctrinal, and organizational differences between services and other government agencies, Martignetti argues that the traditional military structure is neither efficient nor effective as it could be at meeting NSS

objectives. Instead, the author argues for the dissolution of geographic commands and replacing them with functional commands that can better integrate with other USG Departments to provide a truly joint national response to any number of scenarios. Martignetti summarizes the impetus for his proposed revision to the UCP as follows:

> To be more efficient and effective, it is not only appropriate for the UCP to shift from a regional focus to a functional focus, but it would be more appropriate for the entire national security structure to align each of the elements of national power within similar structures, thereby fostering cooperation and engagement. (Martignetti, 2010: 38)

Martignetti states that terrorism, natural disasters, weapons of mass destruction, space, information, and communications have no borders and therefore neither should our military commands (Martignetti, 2010). The author argues for the creation of four additional functional commands to complement the three functional combatant commands currently in existence.

The first is the Homeland Defense Command (USHDCOM). This command would focus on the defense of the US homeland and would coordinate closely with the Department of Homeland Security and the Coast Guard. The second is the Humanitarian Assistance and Disaster Relief Command (USHADRCOM). This command would work closely with USG and non-governmental disaster-relief agencies. The third is the Security and Stability (USSSCOM). This command would work with the US State Department to provide security, stability, and reconstruction efforts globally. The fourth is the War Command (USWARCOM). This command would be responsible to train for and execute the US' major combat operations (Martignetti, 2010).

Under Martignetti's proposal, the Joint Staff and services' structure and purpose would remain intact. The Joint Staff would focus on future conflict, required legislation,

and exercises. The services would organize, train, and equip forces for the seven functional combatant commanders. Once partitioned, forces assigned to combatant commanders would be assigned to a rapidly deployable Joint Task Force (JTF) cell from the respective functional command.

If implemented, Martignetti estimates two major benefits of a revised UCP. First, combatant commanders who are charged with executing military and humanitarian operations will have greater flexibility, will be more responsive, and will have more forces available to them. Second, as boundaries between commands disappear, cross-talk amongst commands should increase.

A final proposed model for consideration is presented by Colonel Hector Pagan in his US Army War College paper, *Defense Reorganization, the Road Ahead for the 21st Century*. Pagan proposes eliminating the different service secretariat positions, consolidating civilian control of the military under the SECDEF, and distributing tasks appropriately across DoD and between the services (Pagan, 2003).

Pagan expresses that all large organizations, the DoD included, consumes resources and talent, both military and civilian. He argues that the more layers of leadership in an organization, the more insulated senior leadership is from the real issues. This slows down actions and increases micro-management. Pagan looks to the successful reform of the British military in the 1980s as contextual proof of concept for his proposal to reduce layers of DoD leadership. He argues that:

> Elimination of the service secretariats could yield almost immediate savings in manpower and resources, which could easily be applied to operational units and combatant commands worldwide. DOD needs to find redundancy, eliminate it, or determine if those functions could be better served in the JCS or SECDEF staffs. (Pagan, 2003: 12)

If any of the aforementioned existing or proposed models is to be implemented by the DoD, it would constitute a major reengineering effort. The following section provides an overview of the concept of Business Process Reengineering (BPR), context as BPR relates to the DoD, and an appraisal of quantitative measurement techniques for assessing the expected results of reengineering efforts.

Organizational Business Process Reengineering

BPR Overview

In their flagship book on the topic, *Reengineering the Corporation: A Manifesto for Business Revolution*, Michael Hammer and James Champy champion BPR and the potential benefits organizations stand to reap from successful reengineering efforts (Hammer & Champy, 1993). At its core:

> Reengineering is the *fundamental* rethinking and *radical* redesign of business *processes* to achieve *dramatic* improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed. (Hammer & Champy, 1993: 35)

The key words in this definition are fundamental, radical, processes, and dramatic. Understanding each of these terms is important to the discussion at hand. In order for changes in an organization to be *fundamentally* different, they must be *radical*. Hammer states that:

> At the heart of reengineering is the notion of discontinuous thinking – of recognizing and breaking away from the outdated rules and fundamental assumptions that underlie operations. Unless we change the rules, we are merely rearranging the deck chairs on the Titanic. We cannot achieve breakthroughs in performance by cutting fat or automating existing processes. Rather, we must challenge old assumptions and shed the old rules that made the business underperform in the first place. (Hammer, 1990: 107)

The medium by which fundamental, radical change occurs is *processes*. Hammer & Champy define processes as:

> A collection of activities that takes one or more kinds of input and creates an output that is of value to the customer. (Hammer & Champy, 1993: 38)

Implied in this definition is knowledge of who the customer is, and what they value. The means by which value is assessed under BPR is through *dramatic* improvements to contemporary performance measures such as cost, quality, service, and speed. According to Hammer's research, 40 percent decreases in costs, 40 percent increases in quality and customer satisfaction, and 70 percent decreases in cycle time are realistic goals for effective BPR efforts (Hammer, 1990). However, in order to realize these improvements, organizations must take a holistic approach to reengineering.

> Reengineering triggers changes of many kinds, not just of the business process itself. Job designs, organizational structures, management systems – anything associated with the process – must be refashioned in an integrated way. In other words, reengineering is a tremendous effort that mandates change in many areas of the organization. (Hammer, 1990: 112)

The next section relates the concepts of BPR to the DoD structure and in so doing, provide a contextual framework by which to address the problem statement of this research.

BPR and the DoD

The DoD is one of the largest organization in the world with some 2.2 million active duty and civilian employees. (U.S. Department of Defense, 2013) Reengineering an organization the size of DoD seems an insurmountable task. However, current fiscal realities may push the DoD to accomplish *fundamental, radical* changes to its *processes*

in an attempt to realize *dramatic* cost savings. The challenge is immense because as former Chairman of the JCS General George Jones once wrote, there are:

> …two pervasive problems within DoD. First, we are too comfortable with the past. Second, we do not make a sufficiently rigorous examination of defense requirements and alternatives. By their very nature, large organizations have a built-in resistance to change. As the largest organization in the free world, our defense establishment has most of the problems of a large corporation but lacks an easily calculated "bottom line" to force needed change. (Jones, 1996: 23)

Jones further added that:

> Bureaucratic resistance to change is enormous and is reinforced by many allies of the services—in Congress and elsewhere—who are bent on keeping the past enthroned. (Jones, 1996: 27)

Lieutenant Colonel David Fautua, USA (Ret.), described the DoD's resistance to change in the context of joint operations when he wrote:

> That the idea of joint culture is a seemingly self-contradictory proposition to the ambitions of a self-professed joint military remains a puzzling paradox. Equally astonishing is how the term has survived as an expression of a possible truth even as proponents for "jointness" decry initiatives that might actually draw the services closer or recoil at the slightest suggestion of delimiting service cultures. (Fautua, 2000: 86)

To accomplish reengineering within the DoD, consideration must be given to the basic precepts of BPR as they relate to the DoD. These precepts are customers and processes.

Understanding who the customers of an organization are shapes the organization's reengineering efforts to satisfy the needs of those customers. For military services, customers include the American people, elected civilian leaders, and combatant commanders. American taxpayers and civilian leaders value a low cost to sustain quality military services. From an operational perspective, combatant commanders utilize the forces provided by the services to accomplish objectives in accordance with the NSS and

NMS. These combatant commanders value quality, service, and speed from the forces provided them from the military services.

Combatant commanders are primarily concerned with *processes* (positioning forces, striking targets, resupplying bases, etc.). Military services are primarily focused on the *functions* they perform as described in DoDD 5100.01. Because military services are first and foremost focused on their own functions, which are not necessarily in tune with the processes that their customers (combatant commanders) expect, there is inherently discord. The result is service parochialism, redundant functionality between services, and a lack of fit between missions in the DoD. To truly reengineer, the DoD must take a congruent, process-focused view. This view should focus on the efficient organization of inputs (services) to maximize outputs (processes) to combatant commanders at the minimum cost (to satisfy the American people and elected civilian leaders). A primary step towards this end is reorganizing the DoD under a unified structure that, having stripped away redundancy, is enabled to orient itself to perform the processes required by the customer in a cost-effective manner. This first step, a monumental task in and of itself, is the focus of this research.

To understand the magnitude of the effort required to reengineer the DoD, it is helpful to look to the private sector at other "large" organizations that have successfully implemented reengineering initiatives. Perhaps the largest company to successfully reengineer their business operations was International Business Machines Corporation (IBM) in the early 1990s. In his reflective account of reengineering efforts, *Who Says Elephants Can't Dance*, previous IBM CEO Louis Gerstner recounts some of the major issues he and his team of "IBMers" overcame (Gerstner, 2002).

In the late 1980s IBM was the undisputed worldwide leader in computer processing technology. Employing over 300,000 employees in 160 countries with a net worth of over $65 Billion USD, the IBM of the late 1980s certainly qualifies as a large corporation (Gerstner, 2002). Despite its size and large market share, especially in mainframe computing, IBM was not immune to hardship. In the early 1990s, IBM began losing market shares to upstart competitors like Microsoft, Oracle, and Sun Microsystems. Realizing that the company was losing billions of dollars each quarter, the board of directors sought new leadership that could right the IBM ship. Louis Gerstner was appointed CEO of IBM in April 1993. Gerstner immediately recognized that many of IBMS business processes were cumbersome and very expensive. In response, Gerstner led the decade-long charge to completely reengineer IBMs main business processes.

Gerstner understood that reengineering would not be easy, but he also understood it to be essential if he was to save IBM. One of Gerstner's senior executives aptly commented that:

> Reengineering is like starting a fire on your head and putting it out with a hammer. (Gerstner, 2002: 64)

Gerstner further defined the problems at IBM:

> We were bloated. We were inefficient. We had piled redundancy on top of redundancy. We were running inventory systems, accounting systems, fulfillment systems, and distribution systems that were all, to a greater or lesser degree, the mutant offspring of systems built in the early mainframe days and then adapted and patched together to fit the needs of one of twenty-four independent business units. … The result was the business equivalent of the railroad systems of the nineteenth century—different tracks, different gauges, different specifications for the rolling stock. If we had a financial issue that required the cooperation of several business units to resolve, we had no common way of talking about it because we were maintaining 266 different ledger systems. (Gerstner, 2002: 64)

Understanding the depth and breadth of IBM's problems, Gerstner made the decision to reengineer IBMs core business processes concurrently versus sequentially. These core processes included hardware development, software development, order fulfillment, integrated supply chain, customer relationship management, and services. Each of these core processes were composed of many lesser internal processes. In total, Gerstner and his team embarked on 60 major reengineering projects throughout the 1990s (Gerstner, 2002). The results of IBM's reengineering efforts amounted to $14 Billion USD in overall savings, $15 Billion USD in avoided materials costs, a 65 percent improvement in on time delivery rates, a reduction of $80 Million USD in inventory carrying costs, and the reduction of delivery costs by $270 Million USD (Gerstner, 2002).

IBM's success with reengineering, while remarkable, is not unprecedented. The next section highlights tools and techniques that have proven successful in reengineering efforts. These tools and techniques may also be used as guideposts by which to organize reengineer initiatives.

Assessing the Effectiveness of BPR

For organizations that have successfully accomplished reengineering, it is relatively simple to assess the effectiveness of BPR. Those organizations need only compare the cost, quality, service, and speed pre- and post-reengineering. For organizations considering reengineering, the assessment is much more difficult. Estimating improvements in cost, quality, service, and speed of proposed changes is an arduous task. In their literature review of BPR, Peter O'Neill and Amrik Sohal highlight five tools and techniques by which organizations might accomplish BPR (O'Neill &

Sohal, 1999). Consideration of how these tools and techniques effect change in an organization may prove useful in estimating the extent of those changes.

The first BPR tool/technique is *process visualization*. Many authors argue that a clearly defined end state is essential before reengineering begins (O'Neill & Sohal, 1999). Still others argue for a clear vision of the entire process, not just the desired end state. (Barrett, 1994).

A second BPR tool/technique is process *mapping/operational method study*. The Integrated Data Method, Data Flow Diagrams, Object Oriented Analysis, and Process Based Project Management are examples of this tool/technique (O'Neill & Sohal, 1999).

A third BPR tool/technique is *change management*. This approach takes into account the human side of reengineering by focusing on the management of organizational change (O'Neill & Sohal, 1999). Humans often perceive change as a major threat to themselves or their jobs. Therefore, some authors argue that change management is perhaps the most important task in reengineering (Mumford & Geert, 1994).

A fourth BPR tool/technique is *benchmarking*. Several authors propose that benchmarking is an integral part of BPR as it allows for the visualization and process development of processes that exist in like organizations (O'Neill & Sohal, 1999).

The fifth and final BPR tool/technique according to O'Neill & Sohal is *process and customer focus*. As previously mentioned, reengineering must be focused on the processes that satisfy the needs of its customers.

Hammer & Champy close their book with a synopsis of ways to succeed at BPR (Hammer & Champy, 1993). It is worth considering four of these points in closing this

section. Knowing common pitfalls and how to avoid them is important when chartering reengineering initiatives.

First, organizations must change processes instead of attempting to fix them. If a process is truly broken, it must be reengineered, it should not be "fixed" through patchwork improvements in the form of automation, downsizing, and motivational programs. The tendency is to attempt to improve outcomes while keeping existing organizational structures and dysfunctional processes instead of starting from scratch to restructure the organization and develop processes to focus on meeting customer needs. Hammer & Champy state that only processes can be reengineered, not organizational units. They also state:

> Incrementalism is the path of least resistance for most organizations. It is also the surest way to fail at reengineering. (Hammer & Champy, 1993: 223)

Second, organizations must not quit their reengineering efforts too early. Many companies abandon reengineering initiatives at the first sign of trouble to return to the comfort of preexisting processes. Still other companies quit after initial reengineering success. Satisfied with minor improvements, these companies forfeit the huge payoffs awaiting firms that successfully reengineer (Hammer & Champy, 1993).

Third, reengineering efforts should not be dragged out. Once an organization's leadership decides to reengineer its processes, change should come quickly. Hammer & Champy argue that twelve months is time enough for an organization to move from announcement to tangible action. Not all reengineering efforts will be completed in this first year, but there must be early evidence of success; else, employees will become distracted, impatient, and confused with regard to BPR (Hammer & Champy, 1993).

Finally, reengineering should not be attempted when the CEO is within two years of retirement. Reengineering is a major muscle movement for an organization. It requires a high level of enthusiasm and commitment from senior leadership. It is improbable that a leader nearing the end of their career would take on such an ambitious undertaking. Also, in order to succeed at reengineering, a company must remain focused on a clear vision of where their efforts will take them in the end. Frequent changes in leadership (and therefore leadership's vision) disrupts past reengineering accomplishments and threatens future reengineering success. (Hammer & Champy, 1993).

Summary

A review of existing literature on the topic was presented in three sections. First, a review of the history behind the current DoD organizational structure to include the US Constitution, the National Security Act of 1947, and the Goldwater-Nichols Act of 1986. Second, an appraisal of current unified force structures in use by other countries and an examination of proposed models for the DoD. Finally, a review of methodologies used to estimate the effectiveness of organizational reengineering. Collectively, this literature review provides the predicate framework for a methodology by which a comprehensive fiscal analysis of the current DoD structure is presented in Chapter 3. Chapter 4 examines the results of the analysis as they relate to the three IQs. Finally, Chapter 5 discusses analysis of the results, to include recommendations for future research and use within the DoD.

III. Methodology

Overview

This chapter describes, in seven sections, the methodology used to assess the potential impact of the DoD transitioning to a functionally-aligned, unified organizational structure. The first section discusses benchmarking in detail. The second section outlines the proposed organizational structure based on existing and proposed models previously described in the literature review. The next three sections describe the methodology used to benchmark major functions from a fiscal perspective, between the four services. First, a qualitative analysis of overlapping functions by military service will highlight areas of functional redundancy. Second, a quantitative assessment of the size of force provided by each service enables comparison of functions between services in like units. Third, a quantitative analysis of the DoD's budget request for FY2013 identifies requested budgeted amounts from each service to perform functional missions. The sixth section describes methodology for benchmarking between services. This section combines data from the previous two sections, identifies the lowest budget requests per function by service. This baseline per-function rate is applied as a benchmark to extrapolate across all services, forming a baseline fiscal savings figure over the current DoD structure. The final section briefly describes methodology for content analysis of existing literature to assess the non-financial benefits of a unified, functionally-aligned DoD structure.

Benchmarking

Originating with Xerox in 1979, benchmarking is a powerful tool for improving many aspects of an organization (Abalateo & Lee, 1993). At its core, benchmarking is:

> The formal process of measuring and comparing a company's operations, products, and services against those of top performers both within and outside that company's primary industry. (Altany, 1991: 12).

According to Camp, the process of benchmarking consists of five phases: planning, analysis, integration, action, and maturity (Camp, 1989). Altany summarizes these phases in a typical benchmarking scenario:

> The process itself is so straightforward and simple. A senior manager typically will start by deciding what part of the company to benchmark. The manager then instructs specialists in that area to determine what company is the very best at that function and to start collecting data to exchange with that company. After analyzing the data, a strategic plan is developed to incorporate the most effective approaches used by the benchmarked company. (Altany, 1991: 11)

With a basic understanding of the process of benchmarking, it is worth examining a taxonomy of the different types of benchmarking. According to D.R. Hull, former manager of benchmarking for AT&T, benchmarking can be divided into two types, broad and specific (Foster, 1992). These categories are further divided as shown in Figure 6:

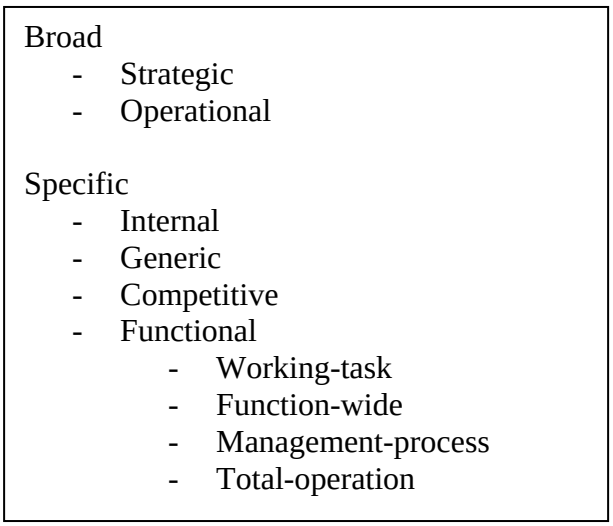

Figure 6. Levels of Benchmarking (Abalateo & Lee, 1993: 14)

For this research, benchmarking will be applied both broadly (Strategic) and specifically (Function-wide). According to Abalateo & Lee, strategic benchmarking deals with the long term goals of an organization. Conversely, function-wide benchmarking deals with all relevant tasks in a specific function (Abalateo & Lee, 1993). This research considers the long term strategic goals of the DoD under the purview of a revised organizational structure. Specific functions are benchmarked between services to potentially improve operational efficiency of the DoD.

Proposed Organizational Structure

Examining the existing national models for defense establishments and the proposed organizational structures for the DoD in the literature review, a hybrid structure is proposed. Taking key components from several models may yield the best option for a functionally-aligned, unified organizational structure. The foundation of this hybrid structure is based on Keskel's model.

Keskel's model proposes separating the "teeth" from the "tail" of the military of services. The teeth of the services are those core functions that each service is uniquely positioned to accomplish (Keskel, 2002). These functions would fall under the purview of the military service that is functionally designated to perform the function. To clearly delineate functional areas between the services, existing services would be re-designated as corps, similar to the current structure of the United States Marine Corps. All air functions would be re-aligned under an Air Corps, all land functions under am Army Corps, all maritime functions under a Naval Corps, all amphibious operations under the Marine Corps, all space functions under a Space Corps, and all special operations

functions under a Special Operations Corps. All other functions that support these core missions, Keskel's tail functions, would follow the recommendation of Kaplan and be re-aligned under existing DoD-level defense agencies (Kaplan, 1993). This is a departure from Keskel's recommendation for the establishment of a Joint Support Force to manage the tail functions.

The DoD currently operates 17 defense agencies and 10 field activities (U.S. Department of Defense Directive 5100.01, 2010). Appendix 2. DoD Defense Agencies, lists these agencies and activities and provides a brief description of their current functional mission. These agencies and activities are uniquely suited to coordinate support (tail) functions across the separate military corps. Most support functions described in DoDD 5100.01 fit within one of these existing agencies or activities. In addition to existing defense agencies and field activities, the proposed organizational structure adds a Defense Medical Agency to coordinate and operate all medical functions, a Defense Civil Engineering Agency to coordinate and oversee maintenance and construction of infrastructure, and a Defense Recruiting Activity to coordinate and execute all recruiting actions.

If core military functions are the responsibilities of the corps and support functions reside with the appropriate defense agency, there is diminished value in maintaining the service secretaries and their staffs. As suggested by Pagan, the proposed organizational structure presented eliminates the service chiefs and their staffs, consolidating civilian control under the SECDEF (Pagan, 2003).

A final change to the existing DoD organizational structure is the elimination of USSOCOM. With the addition of a Special Operations Corps, the need for USSOCOM is

diminished. Instead, special operations forces would be organized, trained, and equipped by the corps and employed by the existing geographic combatant commanders.

Depicted in Figure 7, Proposed DoD Organizational Structure, these four proposed changes take the form of a revised DoD organizational structure that is functionally-align and unified. The next three sections describe the methodology by which this research seeks to assess the potential benefits of such a structure.

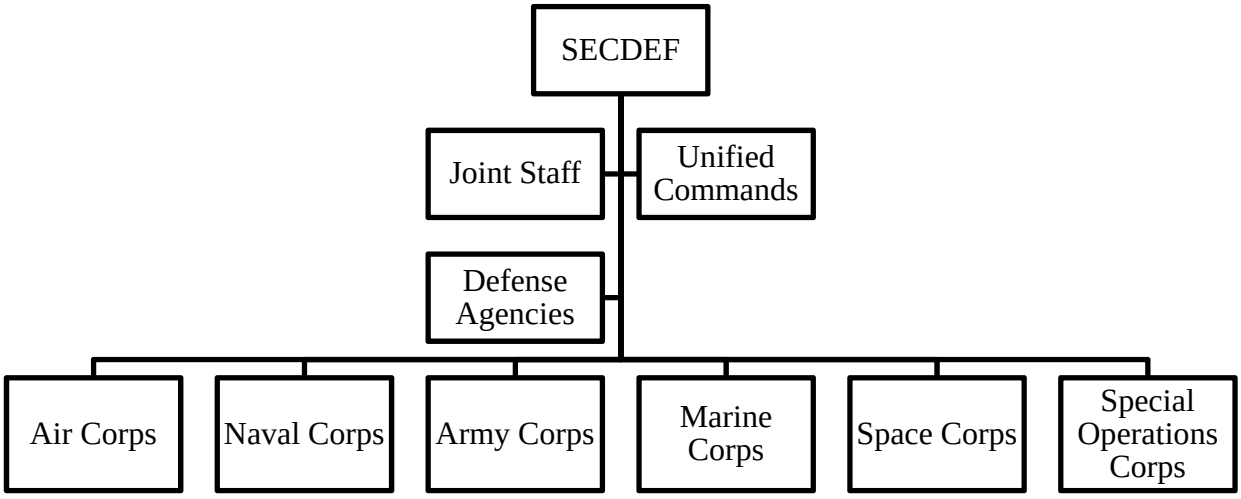

Figure 7. Proposed DoD Organizational Structure

Qualitative Analysis of Overlapping Functions

As discussed in the previous two chapters, DoDD 5100.01 defines the functions for which each military service and department are responsible. A synopsis of these functions may be found at Appendix A. For the reader's convenience, the major functions of the DoD are summarized in Table 1:

Table 1. Major Functions of Military Services

Service-Specific Functions
Land Operations
Maritime Operations
Air Operations
Nuclear Operations
Air and Missile Defense Operations
Riverine Operations
Space Operations
Airborne Operations
ISR Operations
Civil Affairs Operations
Aeromedical Evacuation Operations
Establish Initial Military Government
Civil Works Programs
Security Operations
Functions Common to all Military Services
Training for Joint Operations and Joint Exercises
Organize, Train, and Equip Forces
Cyberspace Operations
Special Operations
Personnel Recovery Operations
Counter Weapons of Mass Destruction
Building Partnership Capacity
Forcible Entry Operations
Presidential Support
Antiterrorism
Support Civil Authorities
Conduct Operational Testing and Evaluation
Command and Control
Force Protection

Analyzing which service performs which of these major functions will identify areas of redundant functionality. Knowing where redundancy exists between military services narrows the scope of this research to focus on those functional areas. The next

section describes the methodology utilized for quantitative assessment of the size of force provided by each service for each function.

Quantitative Assessment of Size of Force

Knowing the overlap of functions provided by military services, the next step is to determine the size of the force associated with each function by service. For example, DoDD 5100.01 states that all four services provide forces in support of air operations, the questions are how many and what type of forces? There is no sole source for this data. Instead, size-of-force data is spread across service budget justification books, service and joint factsheets, Congressional Research Services (CRS) reports, and QDR reports. A consolidated worksheet of data to be collected is presented in Table 2:

Table 2. Size of Force Data Worksheet

	Size of Force (#)			
Functional Area	**USA**	**USN**	**USMC**	**USAF**
1. Personnel				
Active Duty Officer Personnel (K)				
Active Duty Enlisted Personnel (K)				
Civilian Personnel (K)				
Cadets (K)				
PCS Moves (K)				
2. Operations and Maintenance				
2.1. Air Operations				
Flying Hours (K)				
Total Aircraft Inventory (TAI)				
2.2. Land Operations				
Divisions				
Combat Vehicle Depot Maintenance				
2.3. Space Operations				
Supported Satellites in Orbit				
2.4. Air and Missile Defense Operations				
Interceptors/Radars Supported				

2.5. ISR Operations	
UAVs	
2.6. Base Operations Support & Service-wide Support Activities	
Total Personnel (K)	
2.7. Recruiting and Training	
Total Training Population (K)	
Enlisted Recruit Output (K)	
3. Procurement	
3.1. Aircraft	
Fighter/Attack Aircraft	
Rotary Wing Aircraft	
Tactical Airlift/Support Aircraft	
Strategic UAVs	
Aircraft Modifications (TAI)	
Repair/Spare Parts and Support (TAI)	
3.2. Land Vehicles	
Tactical/Support Vehicles	
3.3. Munitions and Missiles	
Air to Ground Munitions	
Tactical Missiles	
3.4. Air and Missile Defense	
Interceptors/Radars	
4. Military Construction	
Square Feet Maintained (M)	
5. Family Housing	
Adequate Housing Units Maintained	

To facilitate data collection, the functional activities in Table 2 are divided in accordance with budget appropriation titles. The DoD's annual budget request to Congress is divided into seven appropriation titles: Personnel, Operations and Maintenance, Procurement, Research and Development, Military Construction, Family Housing, and Revolving Funds. These appropriation titles form the foundation for analysis from this point forward.

However, some of the data associated with each of these appropriation titles is not sufficiently complete to conduct detailed analysis as prescribed here within. The research utilized three criteria to determine the feasibility of including an appropriation title, or subcategory, in further analysis (Figure 8, Data Inclusion Criteria). The first criterion was classification. Certain size of force data may be classified and will therefore be unavailable for analysis as this research is unclassified. The second criterion was a common point of reference between services. In order to analyze redundant functions between services, there must be a common basis for size-of-force comparison. If no such basis was available, the data was excluded from analysis. The final criterion for data inclusion was availability of associated budget request data for the given function. The importance of this criterion is apparent in the next section, which describes the methodology utilized to perform quantitative analysis on the DoD's budget request for FY2013.

Criterion 1 – Data Classification
Criterion 2 – Common Size-of-Force Reference Point
Criterion 3 – Availability of Budget Request Data

Figure 8. Data Inclusion Criteria

Quantitative Assessment of Budget Requests

As previously stated in Chapter I, budget requests originate with the military services, are vetted by military departments, and consolidated at the DoD for submission to Congress. To analyze budget requests in any detail, it is necessary to examine budget

requests at the service level, before they are consolidated by the DoD. Each military service publishes budget request data on their respective financial management websites. Citations for these websites are provided with the actual data in Chapter IV. Service budget requests are published under the seven appropriation titles described in the previous section. These seven appropriation titles are further divided into subtitles. These subtitles are then further divided into BACs and budget sub-activity codes. Collectively, this data provides information on how much money each military service budgets for separate functional areas. A consolidated worksheet of data to be collected is presented in Table 3:

Table 3. Budget Request Data Worksheet

	Budget Request Amount ($Million)			
Functional Area	**USA**	**USN**	**USMC**	**USAF**
1. Personnel				
Active Duty Officer Personnel ($M)				
Active Duty Enlisted Personnel ($M)				
Civilian Personnel ($M)				
Cadets ($M)				
PCS Moves ($M)				
2. Operations and Maintenance				
2.1. Air Operations				
Flying Hours ($M)				
Total Aircraft Inventory ($M)				
2.2. Land Operations				
Divisions ($M)				
Combat Vehicle Depot Maintenance ($M)				
2.3. Space Operations				
Supported Satellites in Orbit ($M)				
2.4. Air and Missile Defense Operations				
Interceptors/Radars Supported ($M)				
2.5. ISR Operations				
UAVs ($M)				
2.6. Base Operations Support & Service-wide Support Activities				

Total Cost ($M)				
2.7. Recruiting and Training				
Total Training Population ($M)				
Enlisted Recruit Output ($M)				
3. Procurement				
3.1. Aircraft				
Fighter/Attack Aircraft ($M)				
Rotary Wing Aircraft ($M)				
Tactical Airlift/Support Aircraft ($M)				
Strategic UAVs ($M)				
Aircraft Modifications ($M)				
Repair/Spare Parts and Support ($M)				
3.2. Land Vehicles				
Tactical/Support Vehicles				
3.3. Munitions and Missiles				
Air to Ground Munitions ($M)				
Tactical Missiles ($M)				
3.4. Air and Missile Defense				
Interceptors/Radars ($M)				
4. Military Construction				
Square Feet Maintained ($M)				
5. Family Housing				
Adequate Housing Units Maintained ($M)				
DEPARTMENT TOTALS				
DoD TOTAL				

Benchmarking Between Services

Combining data from the previous two sections, size-of-force data and budget request data, the research examines the operational efficiency of the services. For this research, operational efficiency is measured as a rate of dollars per unit of function as shown in Equation 1:

$$\text{Operational Efficiency} = \frac{\$\ USD}{\text{Unit of Function}} \qquad (1)$$

The 'Unit of Function' in this equation is different for each functional area assessed. It is the unit associated with size of force data in Table 2.

Examining operational efficiency rates for each service with redundant functional capability allows for comparison between services. For any given function, one service may perform that function at a lower rate than the other services. This low-cost-to-serve rate serves as the benchmark for the DoD for that function. This benchmarked rate may then be applied across that function throughout the entire DoD. When this methodology is applied to all functions within the DoD, the result is a potential fiscal savings from benchmarking operations between services. Figure 9, Methodology Flow Chart, summarizes this methodology, utilizing table nomenclature from Chapter 4.

In order to realize potential fiscal savings, the DoD must be organized in a manner conducive to implementation. This is the link between organizational structure and benchmarking. For the DoD to effectively benchmark operations between existing services would require an unprecedented, and improbable, level of inter-service coordination and the extermination of service parochialism. Instead, a revised organizational structure, that is functionally-aligned to provide a unified force may provide a more salient framework by which to implement benchmarking initiatives and thereby realize meaningful fiscal savings.

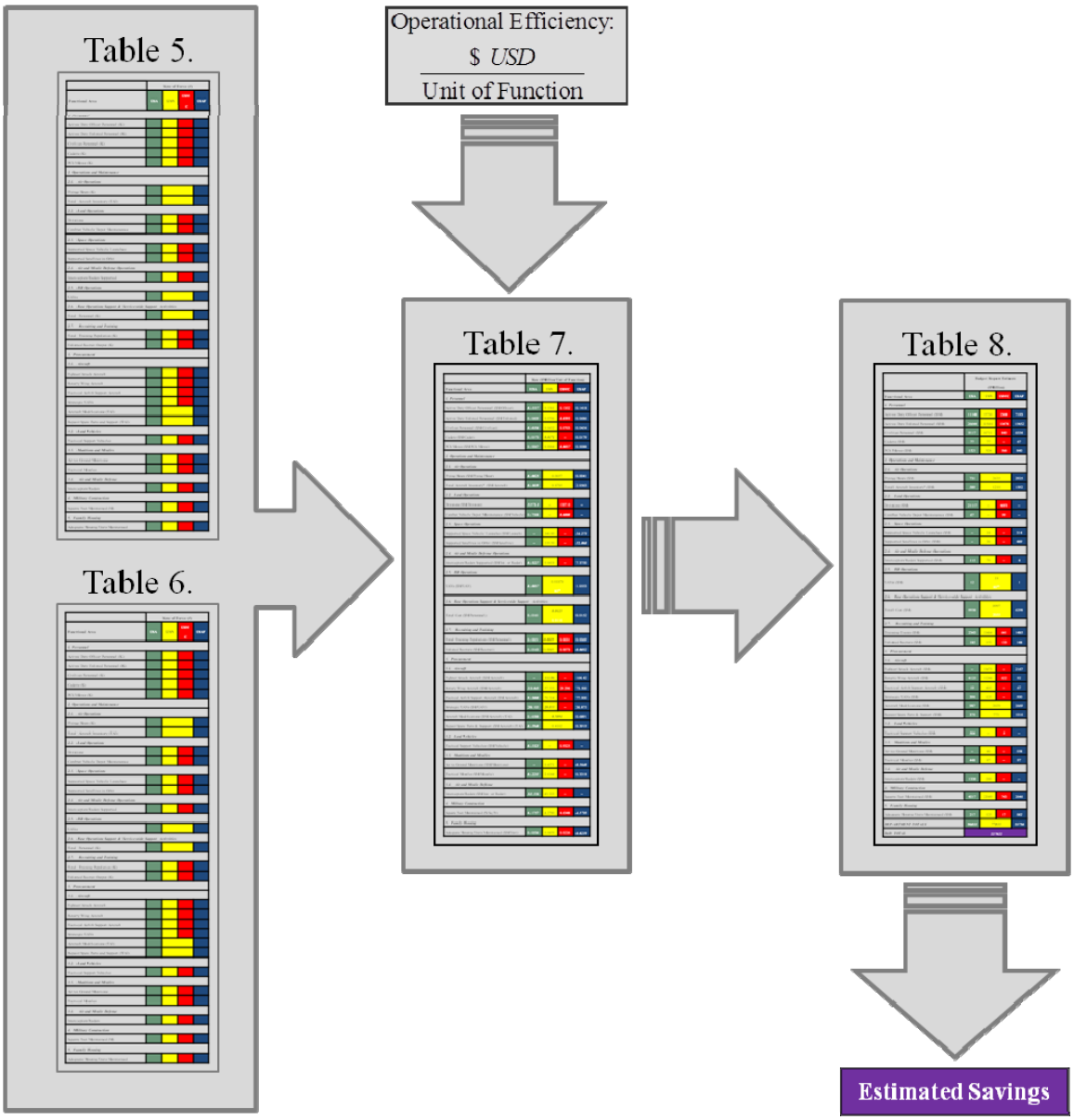

Figure 9. Methodology Flow Chart

Content Analysis of Non-Financial Benefits

Various scholars have authored papers that propose alterations to the current DoD organizational structure. Some of these papers were reviewed under the literature review in the previous section. Many of these authors articulate potential non-financial benefits to their espoused structure. By performing a content analysis of these papers, searching

for non-financial benefits, this research presents a consolidated list of potential non-financial benefits if the DoD were to reengineer towards a unified, functionally-aligned organizational structure.

Summary

This chapter described, in seven sections, the methodology used to assess the potential impact of the DoD transitioning to a functionally-aligned, unified organizational structure. The first section discussed benchmarking in greater detail. The second section outlined the proposed organizational structure based on existing and proposed models previously described in the literature review. The third section examined a qualitative analysis of overlapping functions by military services to highlight areas of functional redundancy. The fourth section, a quantitative assessment of the size of force, enabled comparison of functions between services in like units. The fifth section provided a quantitative analysis of the DoD's budget request. The sixth section described methodology for benchmarking between services and linked benchmarking to organizational structure. The final section presented a methodology by which to assess the non-financial benefits of a reorganized DoD. The following chapter covers results of this proposed methodology as applied to the DoD's budget request for FY2013. Finally, Chapter V discusses analysis of the results, to include recommendations for future research and use within the DoD.

IV. Results and Analysis

Overview

This chapter implements the methodology from Chapter III to evaluate the three investigative questions posed in Chapter I. All results and subsequent analysis are for FY2013.

IQ 1. What functional areas overlap between military services?

The functions of the military services are defined in DoDD 5100.01. A synopsis of these functions is consolidated in Appendix A. For the reader's convenience, these functions are further distilled in Table 4:

Table 4. Functional Redundancy Between Military Services

Service-Specific Functions	**USA**	**USN**	**USMC**	**USAF**
Land Operations	✓	✓	✓	
Maritime Operations		✓	✓	
Air Operations	✓	✓	✓	✓
Nuclear Operations		✓		✓
Air and Missile Defense Operations	✓	✓		✓
Riverine Operations	✓	✓	✓	
Space Operations	✓	✓		✓
Airborne Operations	✓			✓
ISR Operations	✓			✓
Civil Affairs Operations	✓			
Aeromedical Evacuation Operations	✓			✓
Establish Initial Military Government	✓		✓	
Civil Works Programs	✓	✓		
Security Operations			✓	
Functions Common to all Military Services	**USA**	**USN**	**USMC**	**USAF**
Training for Joint Operations and Joint Exercises	✓	✓	✓	✓
Organize, Train, and Equip Forces	✓	✓	✓	✓
Cyberspace Operations	✓	✓	✓	✓
Special Operations	✓	✓	✓	✓
Personnel Recovery Operations	✓	✓	✓	✓

Counter Weapons of Mass Destruction	✓	✓	✓	✓
Building Partnership Capacity	✓	✓	✓	✓
Forcible Entry Operations	✓	✓	✓	✓
Presidential Support	✓	✓	✓	✓
Antiterrorism	✓	✓	✓	✓
Support Civil Authorities	✓	✓	✓	✓
Conduct Operational Testing and Evaluation	✓	✓	✓	✓
Command and Control	✓	✓	✓	✓
Force Protection	✓	✓	✓	✓

As delineated in Table 4, all but two of the service-specific functions defined in DoDD 5100.01 are redundant between two or more services. Air operations are the most redundant function, common among all four services. Land operations, air and missile defense operations, riverine operations, and space operations are redundant among three services. Maritime operations, nuclear operations, airborne operations, ISR operations, aeromedical evacuation operations, establishment of initial military government, and civil works programs are redundant among two services. Seven functional areas were excluded from further analysis because they did not meet the data inclusion criteria from Figure 8.

Maritime operations were excluded because the function is redundant between the USN and the USMC, but these services provide complimentary rather than redundant capability. Nuclear operations were excluded because of the strategic importance of a nuclear triad across multiple functional realms. Airborne operations and aeromedical evacuations were excluded because the USA and USAF provide complimentary, not redundant, capabilities under these overarching functional capabilities. Riverine operations, establishment of initial military government, and civil works programs were excluded due to lack of size-of-force and or budget request data for these functions. All

other redundant functions were analyzed in the next section in accordance with the methodology described in Chapter III.

IQ 2. Could the DoD reduce its budget requests by adopting a functionally-aligned, unified structure?

To answer this investigative question, size of force and budget request data for each functional area, by service, was collected using the worksheets from Table 2. and Table 3. This data was divided between five appropriation titles used by the PPBES: Personnel, Operations and Maintenance, Procurement, Military Construction, and Family Housing. Research and Development and Revolving Funds were removed due to a lack of sufficient data in accordance with the data inclusion criteria from Figure 8. The results and subsequent analysis of the research to answer this IQ are divided between three sections: size-of-force data, budget request data, and operational efficiency results.

Size-of-Force Data Results

Utilizing service budget justification books, service and joint factsheets, and QDR and CRS reports, size-of-force data was collected on functions redundant to two or more military services. Source data for figures in Table 5. Size-of-Force Results, are listed as endnotes.

Table 5. Size-of-Force Results

	Size of Force (#)			
Functional Area	**USA**	**USN**	**USMC**	**USAF**
1. Personnel				
Active Duty Officer Personnel (K)	99.8[1]	51.3[2]	21.2[2]	64.4[3]
Active Duty Enlisted Personnel (K)	447.8[1]	266.9[2]	176.1[2]	259.7[3]
Civilian Personnel (K)	255.9[1]	188.5[2]	23.6[2]	184.1[3]
Cadets (K)	4.5[1]	4.5[2]	--	3.9[3]
PCS Moves (K)	266.8[4]	162.1[5]	99.9[6]	147.3[7]

2. Operations and Maintenance				
2.1. Air Operations				
Flying Hours (K)	293[8]	1054[9]		1170[3]
Total Aircraft Inventory (TAI)	1938[8]	3983[9]		5239[3]
2.2. Land Operations				
Divisions	18[8]	--	4[10]	--
Combat Vehicle Depot Maintenance	111[8]	--	165[11]	--
2.3. Space Operations				
Supported Satellites in Orbit	--	9[20]	--	62[20]
2.4. Air and Missile Defense Operations				
Interceptors/Radars Supported	220[12]	134[14]	--	8[14]
2.5. ISR Operations				
UAVs	2115[13]	3194[12]		235[12]
2.6. Base Operations Support & Service-wide Support Activities				
Total Personnel (K)	808[1]	732[2]		512[3]
2.7. Recruiting and Training				
Total Training Population (K)	808[1]	511[2]	221[2]	512[3]
Enlisted Recruit Output (K)	35.6[8]	29.5[9]	25.5[11]	28.4[13]
3. Procurement				
3.1. Aircraft				
Fighter/Attack Aircraft	--	48[12]	--	19[17]
Rotary Wing Aircraft	179[12]	54[12]	27[12]	4[17]
Tactical Airlift/Support Aircraft	2[14]	51[12]	--	7[15]
Strategic UAVs	19[12]	6[12]	--	24[12]
Aircraft Modifications (TAI)	1938[8]	3983[9]		5239[3]
Repair/Spare Parts and Support (TAI)	1938[8]	3983[9]		5239[3]
3.2. Land Vehicles				
Tactical/Support Vehicles	3831[12]	--	40[12]	--
3.3. Munitions and Missiles				
Air to Ground Munitions	--	280[12]	--	3403[16]
Tactical Missiles	2008[12]	389[12]	--	434[12]
3.4. Air and Missile Defense				
Interceptors/Radars	43[12]	9[12]	--	--
4. Military Construction				
Square Feet Maintained (M)	962[17]	491[19]	178[19]	634[19]
5. Family Housing				
Adequate Housing Units Maintained	9888[18]	5726[21]	798[21]	26556[19]

[1] United States Army FY2013 President's Budget Highlights. (2012, February). Retrieved from http://www.asafm.army.mil/offices/BU/BudgetMat.aspx?OfficeCode=1200

[2] Department of the Navy FY2013 Budget Highlights. (2012, February). Retrieved from http://www.finance.hq.navy.mil/FMB/13pres/BOOKS.htm

[3] United States Air Force FY2013 Budget Overview. (2012, February). Retrieved from http://www.saffm.hq.af.mil/budget/

[4] Department of the Army FY2013 Budget Estimates Military Personnel Justification Book. (2012, February). Retrieved from http://www.asafm.army.mil/offices/BU/BudgetMat.aspx?OfficeCode=1200

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[15] Department of the Air Force FY2013 Budget Estimates Aircraft Procurement Volume 1. (2012, February). Retrieved from http://www.saffm.hq.af.mil/budget/

[16] Department of the Air Force FY2013 Budget Estimates Ammunition Procurement. (2012, February). Retrieved from http://www.saffm.hq.af.mil/budget/

[17] U.S. Department of Defense Base Structure Report FY2013 Baseline (2012). Retrieved from www.acq.osd.mil

[18] Department of the Army FY2013 Budget Submission Army Family Housing & Homeowners Assistance. (2012, February). Retrieved from http://www.asafm.army.mil/offices/BU/BudgetMat.aspx?OfficeCode=1200

[19] Department of the Air Force FY2013 Budget Estimates Military Family Housing. (2012, February). Retrieved from http://www.saffm.hq.af.mil/budget/

[20] U.S. Defense Space-Based and Related Systems FY 2013 Budget Comparison. (2012, February). Retrieved from http://www.spacefoundation.org/sites/default/files/downloads/04%2003%2013%20FY%2013%20Military%20Space%20v7.pdf

Size-of-Force Data Analysis

When analyzing size-of-force data, the unit of function is of fundamental importance. In order to compare functions between services, a common point of reference is required. This common point of reference is different for every function. For example, for air operations, total flying hours and total aircraft inventory (TAI) were selected because each unit represented the size of force provided for air operations from each of the four services. Each unit of function was carefully selected to provide a meaningful comparison between services. Consideration was given to commonality between services for both size-of-force units and availability of budget request data tied to those functions. The next two sections describe the results and analysis of budget request data.

Budget Request Results

For each of the functions identified in Table 5, budget request data was collected from service budget justification books and budget summary reports. This data represents the amount that each service requested during FY2013 to perform the

prescribed function. Source data for figures in Table 6. Budget Request Results, are listed as endnotes.

Table 6. Budget Request Results

	Budget Request Amount ($Million)			
Functional Area	**USA**	**USN**	**USMC**	**USAF**
1. Personnel				
Active Duty Officer Personnel ($M)	11148[1]	8006[5]	2866[6]	9131[7]
Active Duty Enlisted Personnel ($M)	27276[1]	18840[5]	10478[6]	17822[7]
Civilian Personnel ($M)	9117[8]	8140[9]	1658[11]	8360[13]
Cadets ($M)	78[1]	77[5]	--	70[7]
PCS Moves ($M)	1787[1]	1031[5]	566[6]	1290[7]
2. Operations and Maintenance				
2.1. Air Operations				
Flying Hours ($M)	731[8]	6053[9]		4778[13]
Total Aircraft Inventory* ($M)	589[8]	3499[9]		10773[13]
2.2. Land Operations				
Divisions ($M)	21117[8]	--	5348[11]	--
Combat Vehicle Depot Maintenance ($M)	84[8]	--	99[11]	--
2.3. Space Operations				
Supported Satellites in Orbit ($M)	--	239[9]	--	489[13]
2.4. Air and Missile Defense Operations				
Interceptors/Radars Supported ($M)	115[14]	86[14]	--	59[14]
2.5. ISR Operations				
UAVs ($M)	12[8]	60[9]		248[15]
2.6. Base Operations Support & Service-wide Support Activities				
Total Cost ($M)	13034[8]	8997[9,11]		7810[13]
2.7. Recruiting and Training				
Total Training Population ($M)	4138[8]	1464[9]	689[11]	3521[13]
Enlisted Recruit Output ($M)	581[8]	256[9]	187[11]	148[13]
3. Procurement				
3.1. Aircraft				
Fighter/Attack Aircraft ($M)	--	5475[20]	--	3124[17]
Rotary Wing Aircraft ($M)	4125[16]	3096[23]	791[12]	294[17]
Tactical Airlift/Support Aircraft ($M)	19[16]	3586[23]	--	539[17]
Strategic UAVs ($M)	534[16]	125[23]	--	885[17]
Aircraft Modifications ($M)	1277[16]	2029[23]		3610[17]
Repair/Spare Parts and Support ($M)	376[16]	1658[23]		2053[17]

3.2. Land Vehicles				
Tactical/Support Vehicles	506[12]	--	37[12]	--
3.3. Munitions and Missiles				
Air to Ground Munitions ($M)	--	128[12]	--	558[12]
Tactical Missiles ($M)	448[12]	1017[12]	--	144[12]
3.4. Air and Missile Defense				
Interceptors/Radars ($M)	1338[12]	390[12]	--	--
4. Military Construction				
Square Feet Maintained ($M)	4017[8]	2101[9]	825[11]	2646[13]
5. Family Housing				
Adequate Housing Units Maintained ($M)	530[20]	263[21]	18[21]	582[22]
DEPARTMENT TOTALS	***102977***	***100325***		***79248***
DoD TOTAL	***282550***			

* Budget request data is a summation of all activities supporting air operations, minus budgeted amount for flying hours, in support of TAI.

[20] Department of the Navy FY2013 Budget Submission Justification Book Volume 1, Aircraft Procurement, Navy. (2012, February). Retrieved from http://www.finance.hq.navy.mil/FMB/13pres/BOOKS.htm

Budget Request Analysis

The budget requests for the functional areas assessed in Table 6 account for nearly $281 Billion USD, or 54% of the DoD's $526.2 Billion USD Defense Budget Request for FY 2013. Only functions of the military services were assessed. Defense-wide functions were not included. Further, only active duty functions were assessed, analysis of guard and reserve functions was beyond the scope of this research. Additionally, only five of the seven appropriation titles were assessed. Finally, within the appropriation titles that were assessed, not every functional area was examined based on criteria from Figure 8. Collectively, these limitations account for the remaining 46% of the DoD's budget request for FY 2013.

Having obtained results from analysis of size of force and budget request data, the next step to answer this IQ is to overlay these results to determine operational efficiency rates for each redundant function within each service. The next section provides operational efficiency results and analysis of potential budget request savings under a functionally-aligned unified DoD organizational structure.

Operational Efficiency Results

Knowing the results of the size of force and budget request analyses, the next analytical step is to overlay Table 5 and Table 6 to develop a table of operational efficiency rates. These rates are displayed in Table 7, Operational Efficiency Rates. The bolded/italicized rate represents the lowest rate for that function between the four military services.

Table 7: Operational Efficiency Rates

	Rate ($Million/Unit of Function)			
Functional Area	**USA**	**USN**	**USMC**	**USAF**
1. Personnel				
Active Duty Officer Personnel ($M/Officer)	***0.1117***	0.1561	0.1352	0.1418
Active Duty Enlisted Personnel ($M/Enlisted)	0.0609	0.0706	***0.0595***	0.0686
Civilian Personnel ($M/Civilian)	***0.0356***	0.0432	0.0703	0.0454
Cadets ($M/Cadet)	0.0173	***0.0171***	--	0.0179
PCS Moves ($M/PCS Move)	0.0067	0.0064	***0.0057***	0.0088
2. Operations and Maintenance				
2.1. Air Operations				
Flying Hours ($M/Flying Hour)	***0.0025***	0.0057		0.0041
Total Aircraft Inventory* ($M/Aircraft)	***0.3039***	0.8785		2.0563
2.2. Land Operations				
Divisions ($M/Division)	***1173.3***	--	1337.0	--
Combat Vehicle Depot Maintenance ($M/Vehicle)	0.7568	--	***0.6000***	--
2.3. Space Operations				
Supported Satellites in Orbit ($M/Satellite)	--	29.875	--	***7.887***
2.4. Air and Missile Defense Operations				
Interceptors/Radars Supported ($M/Int. or Radar)	***0.5227***	0.6418	--	7.3750

2.5. ISR Operations				
UAVs ($M/UAV)	***0.0057***	0.01878		1.0553
2.6. Base Operations Support & Service-wide Support Activities				
Total Cost ($M/Personnel)	0.0161	***0.0123***		0.0152
2.7. Recruiting and Training				
Total Training Population ($M/Personnel)	0.0051	***0.0029***	0.0031	0.0069
Enlisted Recruits ($M/Recruit)	0.0163	0.0085	0.0073	***0.0052***
3. Procurement				
3.1. Aircraft				
Fighter/Attack Aircraft ($M/Aircraft)	--	***114.06***	--	164.42
Rotary Wing Aircraft ($M/Aircraft)	***23.045***	57.333	29.296	73.500
Tactical Airlift/Support Aircraft ($M/Aircraft)	***9.5000***	70.314	--	77.000
Strategic UAVs ($M/UAV)	28.105	***20.833***	--	36.875
Aircraft Modifications ($M/Aircraft) (TAI)	0.6588	***0.5094***		0.6891
Repair/Spare Parts & Support ($M/Aircraft) (TAI)	***0.1940***	0.4162		0.3919
3.2. Land Vehicles				
Tactical/Support Vehicles ($M/Vehicle)	***0.1321***	--	0.9325	--
3.3. Munitions and Missiles				
Air to Ground Munitions ($M/Munitions)	--	0.4571	--	***0.1640***
Tactical Missiles ($M/Missile)	***0.2231***	2.6144	--	0.3318
3.4. Air and Missile Defense				
Interceptors/Radars ($M/Int. or Radar)	***31.116***	43.333	--	--
4. Military Construction				
Square Feet Maintained ($/Sq Ft)	4.1757	4.2790	4.6348	***4.1735***
5. Family Housing				
Adequate Housing Units Maintained ($M/Unit)	0.0536	0.0459	0.0226	***0.0219***

* Budget request data is a summation of all activities supporting air operations, minus budgeted amount for flying hours, in support of TAI.

The lowest rate from the four military services for each function represents a potential level of operational efficiency throughout the DoD. The final analytical step is benchmarking these lowest rates across the DoD to estimate total budget request reductions under a functionally-aligned, unified organizational structure. By overlaying Table 5 and Table 7, estimated budget request savings were calculated. These estimated budget request savings are displayed in Table 8:

Table 8: Benchmarked Budget Estimates

	Budget Request Estimate ($Million)			
Functional Area	**USA**	**USN**	**USMC**	**USAF**
1. Personnel				
Active Duty Officer Personnel ($M)	11148	5730	2368	7193
Active Duty Enlisted Personnel ($M)	26644	15881	10478	15452
Civilian Personnel ($M)	9117	6711	840	6554
Cadets ($M)	77	77	--	67
PCS Moves ($M)	1521	924	566	840
2. Operations and Maintenance				
2.1. Air Operations				
Flying Hours ($M)	731	2635		2925
Total Aircraft Inventory* ($M)	589	1210		1592
2.2. Land Operations				
Divisions ($M)	21117	--	4693	--
Combat Vehicle Depot Maintenance ($M)	67	--	99	--
2.3. Space Operations				
Supported Satellites in Orbit ($M)	--	71	--	489
2.4. Air and Missile Defense Operations				
Interceptors/Radars Supported ($M)	115	70	--	4
2.5. ISR Operations				
UAVs ($M)	12	18		1
2.6. Base Operations Support & Service-wide Support Activities				
Total Cost ($M)	9938	8997		6298
2.7. Recruiting and Training				
Training Events ($M)	2343	1464	641	1485
Enlisted Recruits ($M)	185	153	133	148
3. Procurement				
3.1. Aircraft				
Fighter/Attack Aircraft ($M)	--	5475	--	2167
Rotary Wing Aircraft ($M)	4125	1244	622	92
Tactical Airlift/Support Aircraft ($M)	19	485	--	67
Strategic UAVs ($M)	396	125	--	500
Aircraft Modifications ($M)	987	2029		2669
Repair/Spare Parts & Support ($M)	376	773		1016
3.2. Land Vehicles				
Tactical/Support Vehicles ($M)	506	--	5	--

3.3. Munitions and Missiles				
Air to Ground Munitions ($M)	--	46	--	558
Tactical Missiles ($M)	448	87	--	97
3.4. Air and Missile Defense				
Interceptors/Radars ($M)	1338	280	--	--
4. Military Construction				
Square Feet Maintained ($M)	4017	2049	743	2646
5. Family Housing				
Adequate Housing Units Maintained ($M)	217	125	17	***582***
DEPARTMENT TOTALS	***96033***	***77864***		***53442***
DoD TOTAL	***227339***			

* Budget request data is a summation of all activities supporting air operations, minus budgeted amount for flying hours, in support of TAI.

By subtracting the total estimated DoD budget request amount in Table 8 from the total DoD budget request amount from Table 6, the budget request savings are estimated at $55 Billion USD for FY 2013. This reduction equates to a 19% reduction in budget request for those functions analyzed. For ease of comparison, Tables 5, 6, 7, and 8 are consolidated at Appendix C, Consolidated Results for IQ 2.

Sensitivity Analysis

These results assume perfect extrapolation of the lowest operational efficiency rates across the entire DoD. While this logic holds in theory, in practice, extrapolating rates across the entire DoD will likely yield a more uncertain outcome. To improve the fidelity of these results, the budget request savings are estimated by extrapolating the 2nd lowest rates for each function from Table 7. The result is an operational trade-space that provides a more accurate estimate of potential budget request savings under the proposed functionally-aligned structure. Budget request calculations using higher rates are presented in Appendix D, Sensitivity Analysis for IQ2.

Using the 2nd lowest rate, budget request savings are estimated at $7 Billion USD for FY 2013. Working in the opposite direction, if the 19% savings calculated in Table 8 were extrapolated across the entire $526.2 Billion USD DoD budget request for FY 2013, the estimated savings would be roughly $100 Billion USD. The estimated budget request savings trade space under the proposed functionally-aligned structure is $7 Billion to $100 Billion USD for FY 2013. These savings should theoretically apply to every budget request in future fiscal year in which the proposed structure is implemented.

IQ 3. What are the non-financial implications of a functionally-aligned, unified structure?

A content analysis of the relevant literature presented in Chapter II provides a list of potential non-financial benefits to reorganizing the DoD's current structure. These espoused benefits stem from various viewpoints on organizational reform. Each potential benefit was assessed against the backdrop of the proposed DoD organizational structure presented in Figure 7. Only those potential benefits that may result from this proposed structure were included in this analysis. The results of this analysis are presented alphabetically by source in Table 9:

Table 9: Non-Financial Benefits of Proposed DoD Structure

Potential Benefit	Source
Establish a cohesive military culture of shared values	Fautua, 2000: 86
Consistency between training for, and operational execution of, functional missions	Jones, 1996: 27
Enables joint staff to tackle tough decisions once shrouded in service parochialism	Jones, 1996: 27
Reduces conflicts of interest between senior service leaders	Jones, 1996: 27
Improved flexibility and speed of national command control	Kaplan, 1993: 15 Keskel, 2002: 54 Pagan 14
Removing service departments streamlines PPBES process	Kaplan, 1993: 15
Consolidation and reduction of real property footprint	Kaplan, 1993: 16

More efficient acquisition process – reduce procurement of redundant and non-interoperable systems	Kaplan, 1993: 16 Keskel, 2002: 50
Single personnel system for military and civilians across all corps	Kaplan, 1993: 17
Common regulations, rules, and standards for each function	Kaplan, 1993: 17
Roles and mission controversy between service would ease	Kaplan, 1993: 17 Nunn, 1996: 64
Maintains current force capabilities without "hollowing" out force	Kaplan, 1993: 26
Corps able to focus on core competencies (teeth) and allow defense-wide agencies to focus on support functions (tail)	Keskel, 2002: 49
Significant reduction in duplication between services in operational and support functions	Keskel, 2002: 49
Greater flexibility to the joint force commander to execute military operations in support of NSS	Keskel, 2002: 49 Quinn, 1993: 163
Increased interoperability through truly joint systems	Keskel, 2002: 50
Increased coordination between corps and between corps and external agencies	Martignetti, 2011: 38
Corps structure allows for a quicker, more comprehensive response as new missions emerge (i.e. possible establishment of a Cyber Corps)	Nunn, 1996: 64
Allows for broader organizational concepts for national security	Nunn, 1996: 65
Reduction in staff duplication streamlines the organization allowing for better management	Nunn, 1996: 66 Pagan, 2003: 7
Improved strategic vision across DoD	Pagan, 2003: 8

The list of potential benefits in Table 9 is certainly not comprehensive, but it represents many of the non-financial merits of reorganizing the DoD under a unified, functionally-aligned structure. However, absent implementation of the reengineering efforts described in the previous chapter, it is difficult to assess which, if any, of these benefits might actually be realized.

Summary

This chapter implemented the methodology from Chapter III to evaluate the three investigative questions posed in Chapter I. To answer IQ1, a synopsis of overlapping functionality between military services, as defined by DoDD 5100.01, was presented in

Table 4. To answer IQ2, size-of-force and budget data were collected in Tables 5 and 6 respectively. This data was analyzed to determine operational efficiency rates by function as displayed in Table 7. These rates were then benchmarked across the size-of-force levels from Table 5 to estimate budget request savings under a unified, functionally-aligned organizational structure as displayed in Table 8. The estimated budget request savings from this analysis was between $7 Billion and $100 Billion USD for FY2013. To answer IQ3, a content analysis of relevant literature was conducted. Potential non-financial benefits of reengineering the DoD's organizational structure are displayed in Table 9. The final chapter of this research recommends area for enhanced analysis and future study before summarizing conclusions.

V. Discussion and Conclusions

Overview

The recommendations in this chapter stem from the results and analysis presented in the previous chapter. Recommendations are divided into three sections. The first section examines the need for more accurate cost and budget data to improve the fidelity of this research. The second section addresses potential resistance to the findings of this research. The third section delineates areas for future research. Finally, conclusions from this research are presented.

Requirement for Better Data

The data for this research was pulled from DoD and military service budget request data for FY2013. It is important to clarify that budgets and cost are not synonymous. Up to this point, discussion has been on budget requests, not costs. The difference between budgets and costs and the importance of accurate cost and budget data is now examined.

Budgets are estimated levels of financial resources required to accomplish a functional activity. Under traditional approaches, current year budgets are typically produced through negotiation to within a few percentage points of the previous year's budget (Cooper & Kaplan, 1998). However, in the absence of accurate cost data, budgets may be woefully inaccurate.

Costs are the amount of financial resources actually expended to accomplish a functional activity. According to Cooper & Kaplan, most organizations, operating under a traditional cost accounting (TCA) system, have little knowledge of what it costs an

organization to perform its required functions. Under TCA, an organization will allocate all of its costs via direct labor, equipment, or material costs, completely ignoring indirect and support costs. The DoD utilizes a TCA approach to allocate overhead costs throughout its vast hierarchical system. An alternative to TCA is activity-based costing (ABC) (Cooper & Kaplan, 1998).

ABC assigns direct, indirect, and support costs to the functions that consume organizational resources. Costs are tied to a particular product, customer, or process instead of being arbitrarily spread over an entire operation. According to Cooper & Kaplan, ABC systems seek to answer four fundamental questions:

1. What activities are being performed by the organizational resources?
2. How much does it cost to perform organizational activities and business processes?
3. Why does the organization need to perform activities and business processes?
4. How much of each activity is required for the organization's products services and customers? (Cooper & Kaplan, 1998: 79)

The product of ABC is a much clearer picture for managers and leaders seeking to understand the "economics of their operations." (Cooper & Kaplan, 1998: 3) ABC is a system by which managers can more accurately account for the consumption of financial resources. According to Cooper & Kaplan, ABC is a necessary predicate to effective and accurate organizational budgeting through activity-based budgeting (ABB).

ABB is simply ABC in reverse. ABC assigns costs to functions based on the resources consumed by that function; ABB uses this cost data to estimate the amount of financial resources needed to operate required functions in the next fiscal period (Cooper & Kaplan, 1998). Instead of using the budget from the previous fiscal period as the starting point for the current budget, under ABB, budgets are calculated from scratch based on the anticipated costs required to perform the required functions of the

organization. The result is that, under ABB, budget requests and organizational costs are very closely aligned and every dollar is accurately traced to specific functions.

This research estimates a $7 Billion to $100 Billion USD FY2013 budget reduction by reengineering the DoD under a unified, functionally-aligned organizational structure. These results however are based on budget request data derived from TCA principles. Therefore, the accuracy of this budget request data is questionable. $7 Billion to $100 Billion USD is a rough order-of-magnitude estimate of potential savings. Before proceeding with any reengineering efforts, the DoD must accurately assign costs to the functions it performs. The DoD must be able to articulate the cost to operate an F-22, a Stryker Brigade, or a Navy Cruiser, it must understand the direct, indirect, and support costs of organizing, training, and equipping its personnel. Only when these costs are delineated under an ABC, and subsequently ABB, model, is a more accurate estimate of potential financial savings possible. Cooper & Kaplan (1998) argue that there are four fundamental steps to developing an ABC system.

First, an organization must develop an activity dictionary identifying the activities it performs. An activity is a verb and an associated object, i.e. fly aircraft. This dictionary describes in aggregate what the organization does. DODD 5100.01 provides an excellent jumping off point for building a DoD activity dictionary.

Second, an organization must determine the amount of resources spent on each activity. This is an arduous task for an organization as large as the DoD. However, delineating how much direct, indirect, and support resources are required to support activities is imperative to implementing ABC and ABB models and understanding the economic roadmap of the organization. An important consideration in this step is the

development of a hierarchy of activities by which costs are assigned at the level where resources are consumed. Such insight is extremely meaningful in a hierarchically-structured organization like the DoD.

The third step is to identify the organization's products, services, or customers. An organization must be able to articulate why it necessary to perform the activities it does. According to Cooper & Kaplan, the reason that an organization performs activities is to "design, build, and deliver products and services to its customer." (Cooper & Kaplan, 1998: 94) The military services perform activities to accomplish functional activities for their customer, the combatant commander. This is the link between ABC and BPR. Reengineering involves radically changing processes, which are collections of activities, to provide value to the customer (Hammer & Champy, 1993). The customer must be the object in focus during both ABC and BPR initiatives.

The final step is to select activity cost drivers that link activity costs to the organization's products, services, and customers. Cooper & Kaplan define an activity cost driver as a "quantitative measure of the output of an activity." (Cooper & Kaplan, 1998: 95) Cost drivers can be transaction-, duration-, or intensity-based. The activity hierarchy described in step 2 provides the framework for matching the level of cost to an associated activity at the same hierarchical level. Unit-level activities should have unit-level activity drivers; division-level activities should have division-level activity drivers; etc.

This section provided an elementary overview of ABC and ABB in relation to the DoD. The brevity of this section is not intended to diminish the importance of its content. The DoD must have an accurate understanding of which activities consume

which resources at what level before considering reengineering. Even if the DoD were to develop an ABC system and leverage that system to implement ABB, there would likely be resistance to the model proposed by this research. The next section discusses this potential resistance via a content analysis of literature reviewed in Chapter II.

Resistance to Research

The results in Chapter IV highlight several potential financial and non-financial benefits of the unified, functionally-aligned organizational structure proposed by this research. Despite these potential benefits, existing literature suggests considerable resistance to any major changes to the current DoD organizational structure. Through content analysis of the literature examined in Chapter II, this section addresses six major points of potential resistance against adopting the proposed model.

The first point of resistance is one of politics. The Constitution of the United States, Article One, Section Eight lists the powers enumerated to Congress regarding the establishment and organization of a military. The US Military serves to uphold constitutional ideals at the will of Congress. The current DoD organizational structure is physically, financially, and culturally rooted in all 50 states and most congressional districts. Communities across the country typically welcome military installations because of the economic stimulus and social prestige they afford. Congressional in-fighting to maintain respective slices of the military pie is a reality. The lack of successful Base Realignment and Closures (BRAC) implementation in recent history highlights the juxtaposition that congressional leaders face between reducing the DoD's footprint to realize financial savings and maintaining a position of favor with their respective electorates.

The changes proposed by recent BRAC initiatives pale in comparison to the changes proposed by this research. Reengineering the DoD is likely to be politically inauspicious. However, it should be noted that this research proposes very few reductions in personnel, missions, or installations. Instead, this research argues for the functional reorientation of these personnel, missions, and installations to improve their operational efficiency.

The second point of resistance regards the history and tradition of the Military Services. Three of the four US Military Services have histories dating back over 200 years to the very foundations of the United States. These are revered heritages in which many service members, both past and present, find their very identity. To illustrate this point, suppose an Army officer, Naval petty officer, Marine sergeant, or Air Force airmen were asked, "Who do you work for?" Their answers would likely be the Army, Navy, Marine Corps, and Air Force respectively. While these answers are correct, it is also valid to say that all four of these individuals work for the DoD or the USG. Most service members identify with their respective services, not their government, or governmental department.

The model proposed by this research attempts to unify the US Military and in so doing, it attempts to dissolve service-centric mentalities and unhealthy service parochialism. However, the proposed model maintains room for the continuation of history and tradition under newly designated functional corps. The heritage of individual units could continue as units are realigned, not eliminated.

A final thought regarding service heritage is one of perspective. The military services have rich histories and time-honored traditions; but these service histories and

traditions fall under a much grander umbrella of history and tradition that is the United States of America. If an alternative DoD organizational structure provides the United States with financial and operational advantages over the status quo, should not such a structure be given due consideration?

A third point of resistance is based on the argument that a certain degree of service parochialism is healthy and beneficial for the wellbeing of the US Military. The principles of free market economics dictate that competition between firms provides a better product or service at a better price over monopolistic or socialistic settings. The argument could be made of competition between the services—through competition with each other, the military services can better serve combatant commanders and American citizens.

This logic is flawed however; there is a difference between inter-firm and intra-firm competition. Firms that compete with themselves internally will likely not optimize their overall performance. If different divisions in a firm seek local optimums at the expense of the firm's overall wellbeing, the firm will not perform to its' potential. If however, divisions are unified in their effort to maximize the overall performance of the firm, then, and only then, will the firm optimize its performance. The DoD is a single government department (firm) and the Military Services (divisions) must be unified in their efforts to provide the best service to combatant commanders, elected civilian officials, and American citizens (customers).

The fourth point of resistance concerns the consolidation of civilian control under the DoD. Currently, the Military Service Secretaries maintain control over their respective services. Under the proposed model, civilian control would be consolidated

with the SECDEF. Does this consolidation erode constitutionally-mandated civilian control of the military? Further, the current division of power between the military services provides an internal check and balance for the DoD. Under the proposed model, this check and balance would be diminished.

While these points are valid, they are perhaps shortsighted. Under the proposed model, civilian control would still reside with the SECDEF, Congress, and National Command Authority. Raising the level of civilian control above Service Secretaries does not diminish the importance of that control; conversely, it emphasizes the need for civilian control to be overarching with a focus on national defense instead of the defense of service-centric interests.

A fifth point of resistance is that by consolidating functions under corps, interoperability of forces might diminish. A lack of interoperability between military forces has, in the past, caused problems for the DoD (i.e. fratricide during Operation Provide Comfort). Joint exercises are intended to overcome interoperability challenges. Under the proposed model, joint exercises would continue to serve this purpose. However, unlike today, under the proposed model, actions within functional areas would already be coordinated. For example, all forces aligned under the Air Corps would already function under a set of standardized doctrine, regulations, and operating procedures. The challenge of interoperability between functions would remain, but interoperability challenges within functions would largely disappear.

A final point of resistance is the consolidation of support functions under defense-wide agencies and activities. Currently, each Military Service provides forces to accomplish support functions to sustain the service's operational mission. Each service's

support requirements are uniquely tied to the operational mission of that service. While there is considerable redundancy across these support functions between services, the requirements are not universal. Additionally, if support functions were consolidated, operational commanders would have much less control over the quantity, quality, and timeliness of those support functions. These are valid concerns. Under the proposed model, careful consideration would need to be given to which functions are truly tied to the operational functionality of the corps. Those functions that are truly unique to the corps' operational capability should be retained within that corps. All other functions should be consolidated at the DoD level. To delineate between these two categories, a DoD-wide, function-by-function, analysis would be required. Such analysis is beyond the scope of this research.

Areas for Future Research

The scope of this research is vast. Attempting to understand the interrelation of the history, organization, and budget of the DoD is an enormous undertaking. This research merely scratches the surface of this immense topic. Therefore, there are several areas recommended for future research.

First, the proposed methodology could be refined. With more detailed budget data and more time, future researchers could provide a more detailed comparison of areas of overlapping functionality between Military Services. Choosing units of comparison at a sub-aggregate level may improve the accuracy and fidelity of this research.

Second, the proposed methodology could be applied across multiple fiscal years. FY2013 was selected for this research because it was the most recent fiscal year for which all required data was available at the time when analysis began. Comparing results

across fiscal years could yield a more accurate estimate of potential cost savings under a unified, functionally-aligned DoD organizational structure.

As discussed in the first section of this chapter, the accuracy of this research could be much improved through the utilization of an ABC/ABB system for the DoD. Future research could use the four steps identified by Cooper & Kaplan (1998) to develop a comprehensive framework by which the DoD could adapt an ABC/ABB system.

A fourth area for future research would be a Delphi study by senior DoD leaders to delineate which support functions should reside with their respective functional corps and which should be consolidated under the purview of the defense-wide agencies and activities. This study could also cross-examine DODD 5100.01 to determine which functional areas of the DoD are truly redundant.

Fifth, a small-scale pilot study could be conducted as proof of concept for proposed methodology. For example, the DoD's current joint-basing initiatives could be analyzed using the methodology proposed here within. This analysis would likely yield very useful information regarding the practical implementation of this research.

Finally, a study of increasing returns to scale could yield additional potential savings over those identified in this research. According to Richard de Neufville:

> Returns to scale reflect the proportionate increase in output when all inputs to the design change proportionately. (De Neufville, 1990: 52)

As functions are consolidated under their respective corps, additional financial savings may be realized due to the higher operational efficiency of a larger functional force operating in a unified manner. This research estimates budget savings based on *benchmarked operating efficiency* of current operating efficiencies. Examining the effect

of increasing returns to scale may yield higher budget savings based on *potential operating efficiency*.

Conclusions

The DoD and the USG face an uncertain fiscal future. While the current DoD organizational structure affords the United States a world-class military, it does so at a cost. The functional redundancy of the Military Services and the parochial service infighting it produces diminishes the operational efficiency of the US Military. Working towards reengineering the DoD under a unified, functionally-aligned organizational structure may yield significant financial and non-financial benefits to combatant commanders and American citizens.

The model proposed by this research attempts to delineate the "tooth" from the "tail" of the current DoD structure. Under the proposed model, core operational missions would be realigned under functional corps. All other support functions would be divided between defense-wide agencies and activities. Finally, civilian control of the military would be consolidated under the SECDEF with the dissolution of the service secretary positions.

As redundant functions, which were previously accomplished by the services, are realigned under functional corps, benchmarked operational efficiency rates between the services by function yields a baseline estimate for financial savings. The potential budget request reduction for FY2013 under this proposed model is estimated to be between $7 Billion and $100 Billion USD.

The non-financial benefits of the proposed model are numerous and varied. As summarized in Table 9, these benefits focus on the improved interoperability of military forces and resulting increased operational efficiency.

This research is not intended to be comprehensive. Several thought papers have been written proposing alternative models to the DoD structure; this research is intended to provide a quantitative methodology by which to assess the potential fiscal savings of those alternative structures. Vast areas of future research exist, the implications of which may result in a fundamental, radically different, reengineering of current and future DoD operations.

Historic changes to the United States' military construct have coincided with times of great change in world politics. The National Security Act of 1947 came on the heels of the Second World War. The Goldwater-Nichols Act of 1986 was born in the dwindling light of the Cold War. Today's uncertain geopolitical climate and the USG's fiscally-unbalanced posture may provide a compulsory backdrop for yet another historic change to the DoD. My hope is that this research provides meaningful insight towards positive change.

Appendix A. Synopsis of DODD 5100.01

(Source: DoDD 5100.01, Enclosure 6, December 21, 2010)

Functions common to all Military Departments	Functions common to all Military Services
1.a.1. **Recruiting.** 1.a.2. **Organizing.** 1.a.3. **Supplying.** 1.a.4. **Equipping (including research and development).** 1.a.5. **Training.** 1.a.6. **Servicing.** 1.a.7. **Mobilizing.** 1.a.8. **Demobilizing.** 1.a.9. **Administering (including the morale and welfare of personnel).** 1.a.10. **Maintaining.** 1.a.11. **Construction, outfitting, and repairs of military equipment.** 1.a.12. **Construction, maintenance, and repair of buildings, structures, and utilities as well as the acquisition, management, and disposal of real property and natural resources.**	2.a. **Develop concepts, doctrine, tactics, techniques, and procedures**, and **organize, train, equip, and provide land, naval, air, space, and cyberspace forces**, in coordination with the other Military Services, Combatant Commands, USG departments and agencies, and international partners, as required, that enable joint force commanders to conduct decisive operations across the spectrum of conflict in order to achieve the desired end state. 2.b. **Determine Military Service force requirements** and make recommendations concerning force requirements to support national security objectives and strategy and to meet the operational requirements of the Combatant Commands. 2.c. **Recommend** to the Joint Chiefs of Staff the **assignment and deployment of forces** to the Combatant Commands established by the President through the Secretary of Defense. 2.d. **Monitor and assess Military Service operational readiness and capabilities of forces** for assignment to the Combatant Commands and plan for the use of the intrinsic capabilities of the other Military Services and USSOCOM that may be made available. 2.e. **Develop doctrine, tactics, techniques, and procedures** for employment by Military Service forces and: 2.e.1. Assist the Chairman of the Joint Chiefs of Staff in the development of joint doctrine. 2.e.2. Coordinate with the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the other Military Services, USG departments and agencies, partner security forces, and non-governmental organizations, in the development of the doctrine, tactics, techniques, and procedures necessary for participation in and/or command of joint, interagency, and multinational operations. 2.e.3. Coordinate with the Commander,

	USSOCOM, in the development of the doctrine, tactics, techniques, and procedures employed by Military Service forces when related to special operations. 2.f. **Provide for training for joint operations and joint exercises** in support of Combatant Command operational requirements, including the development of Military Service joint training requirements, policies, procedures, and publications. 2.g. **Provide logistical support** for Military Service and all forces assigned to joint commands, including procurement, distribution, supply, equipment, and maintenance, unless otherwise directed by the Secretary of Defense. 2.h. **Organize, train, and equip forces** to contribute unique service capabilities to the joint force commander to conduct the following functions across all domains, including land, maritime, air, space, and cyberspace: 2.h.1. **Intelligence, surveillance, reconnaissance (ISR)**, and **information operations**, to include **electronic warfare** and **MISO** in order to provide situational awareness and enable decision superiority across the range of military operations. 2.h.2. **Offensive and defensive cyberspace operations** to achieve cyberspace superiority in coordination with the other Military Services, Combatant Commands, and USG departments and agencies. 2.h.3. **Special operations** in coordination with USSOCOM and other Combatant Commands, the Military Services, and other DoD Components. 2.h.4. **Personnel recovery operations** in coordination with USSOCOM and other Combatant Commands, the Military Services, and other DoD Components. 2.h.5. **Counter weapons of mass destruction**. 2.h.6. **Building partnership capacity/security force assistance operations.** 2.h.7. **Forcible entry operations.** 2.h.8. **Missile Defense.**

	2.h.9. **Other functions as assigned**, such as **Presidential support** and **antiterrorism**. 2.i. **Organize, train, and equip forces to conduct support to civil authorities in the United States and abroad**, to include support for disaster relief, consequence management, mass migration, disease eradication, law enforcement, counter-narcotics, critical infrastructure protection, and response to terrorist attack, in coordination with the other Military Services, Combatant Commands, National Guard, and USG departments and agencies. 2.j. **Operate organic land vehicles, aircraft, cyber assets, spacecraft or space systems, and ships or craft.** 2.k. **Conduct operational testing and evaluation.** 2.l. **Provide command and control.** 2.m. **Provide force protection.** 2.n. **Consult and coordinate with the other Military Services on all matters of joint concern.**

Functions of the Department of the Army	Functions of the Department of the Navy	Functions of The Department of the Air Force
4.a. The Department of the Army includes land combat, and service forces, and such aviation, water transport, and space and cyberspace forces as may be organic therein, and shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land, and to support the other Military Services and joint forces. The Army is responsible for the preparation of land forces necessary for the effective prosecution of war and military operations short of war, except as otherwise assigned. **The Army is the Nation's principal land force** and promotes national values and interests by conducting military engagement and security cooperation; deterring aggression	5.a. The Department of the Navy is composed of naval, land, air, space, and cyberspace forces, both combat and support, not otherwise assigned, to include those organic forces and capabilities necessary to operate, and support the Navy and Marine Corps, the other Military Services, and joint forces. **The Navy and Marine Corps comprise the Nation's principal maritime force**. They employ the global reach, persistent presence through forward-stationed and rotationally-based forces, and operational flexibility to secure the Nation from direct attack; secure strategic access and retain global freedom of action; strengthen existing and emerging alliances and partnerships; establish favorable security conditions; deter aggression	6.a. The Department of the Air Force is composed of air, space, and cyberspace forces, both combat and support, not otherwise assigned. **The Air Force is the Nation's principal air and space force**, and is responsible for the preparation of forces necessary for the effective prosecution of war. The Department of the Air Force shall organize, train, equip, and provide air, space, and cyberspace forces for the conduct of prompt and sustained combat operations, military engagement, and security cooperation in defense of

and violence; and should deterrence fail, compelling enemy behavioral change or compliance. The Army shall contribute forces through a rotational, cyclical readiness model that provides a predictable and sustainable supply of modular forces to the Combatant Commands, and a surge capacity for unexpected contingencies.	and violence by state, non-state, and individual actors and, should deterrence fail, prosecute the full range of military operations in support of U.S. national interests.	the Nation, and to support the other Military Services and joint forces. The Air Force will provide the Nation with global vigilance, global reach, and global power in the form of in-place, forward-based, and expeditionary forces possessing the capacity to deter aggression and violence by state, non-state, and individual actors to prevent conflict, and, should deterrence fail, prosecute the full range of military operations in support of U.S. national interests.

Functions of the Army	Functions of the Navy	Functions of the Marine Corps	Functions of the Air Force
Land Operations			
4.b.1. Conduct prompt and sustained **combined arms combat operations on land** in all environments and types of terrain, including complex urban environments, in order to defeat enemy ground forces, and seize, occupy, and defend land areas. 4.b.7. **Interdict** enemy sea, space, air power, and communications **through operations on or from the land**. 4.b.13. Operate **land lines of communication**.	5.b.1. Conduct **offensive and defensive operations** associated with the maritime domain including achieving and maintaining sea control, to include subsurface, surface, **land**, air, space, and cyberspace.	5.c.3. Conduct **land** and air **operations** essential to the prosecution of a naval campaign or as directed. 5.c.4. Conduct **complex expeditionary operations** in the urban littorals and other challenging environments.	
Maritime Operations			
	5.b.1. Conduct **offensive and defensive operations** associated with the maritime domain including achieving and maintaining sea control, to include **subsurface, surface**, land, air, space, and cyberspace. 5.b.2. Provide **power projection through sea-based global strike**, to include nuclear and conventional capabilities; interdiction and interception capabilities; maritime and/or littoral fires, to include naval surface fires; and close air support for ground forces. 5.b.6. **Establish, maintain, and defend**	5.c.1. **Seize and defend advanced naval bases or lodgments** to facilitate subsequent joint operations. 5.c.4. Conduct **complex expeditionary operations** in the urban littorals and other challenging environments. 5.c.5. Conduct **amphibious operations**, including engagement, crisis response, and power projection operations to assure access. The Marine Corps has primary responsibility for the development of amphibious doctrine, tactics, techniques, and equipment.	

	sea bases in support of naval, amphibious, land, air, or other joint operations as directed.		
Air Operations			
	5.b.1. Conduct **offensive and defensive operations** associated with the maritime domain including achieving and maintaining sea control, to include subsurface, surface, land, **air**, space, and cyberspace. 5.b.2. Provide power projection through sea-based global strike, to include nuclear and conventional capabilities; interdiction and interception capabilities; maritime and/or littoral fires, to include naval surface fires; and **close air support for ground forces.**	5.c.3. Conduct land and **air operations** essential to the prosecution of a naval campaign or as directed. 5.c.2. Provide **close air support for ground forces**.	6.b.2. Conduct **offensive and defensive operations**, to include appropriate air and missile defense, to gain and maintain **air superiority**, and **air supremacy** as required, to enable, the conduct of operations by U.S. and allied land, sea, air, space, and special operations forces. 6.b.3. Conduct **global precision attack**, to include **strategic attack, interdiction, close air support, and prompt global strike.** 6.b.6. Provide **rapid global mobility** to employ and sustain organic air and space forces and other Military Service and USSOCOM forces, as directed, to include **airlift forces for airborne operations, air logistical support, tanker forces for in-flight refueling, and assets for aeromedical evacuation**. 6.b.9. Conduct global integrated command and control for **air** and space **operations**.
Nuclear Operations			
	5.b.9. Conduct **nuclear operations** in support of strategic deterrence, to include providing and maintaining nuclear		6.b.1. Conduct **nuclear operations** in support of strategic deterrence, to include providing and maintaining nuclear

	surety and capabilities. 5.b.2. Provide power projection through sea-based global strike, to include **nuclear** and conventional capabilities; interdiction and interception capabilities; maritime and/or littoral fires, to include naval surface fires; and close air support for ground forces.		surety and capabilities.
Air and Missile Defense Operations			
4.b.2. Conduct **air and missile defense** to support joint campaigns and assist in achieving air superiority.	5.b.3. Conduct ballistic **missile defense**.		6.b.2. Conduct **offensive and defensive operations**, to include appropriate **air and missile defense**, to gain and maintain air superiority, and air supremacy as required, to enable, the conduct of operations by U.S. and allied land, sea, air, space, and special operations forces.
Riverine Operations			
4.b.5. Conduct **riverine operations**.	5.b.5. Conduct **riverine operations**.	5.c.4. Conduct **complex expeditionary operations** in the urban littorals and other challenging environments. 5.c.5. Conduct **amphibious operations**, including engagement, crisis response, and power projection operations to assure access. The Marine Corps has primary responsibility for the development of amphibious doctrine, tactics, techniques, and equipment.	
Space Operations			
4.b.9. Provide	5.b.8. Provide		6.b.5. Conduct

support for space operations to enhance joint campaigns, in coordination with the other Military Services, Combatant Commands, and USG departments and agencies.	**support for joint space operations** to enhance naval operations, in coordination with the other Military Services, Combatant Commands, and USG departments and agencies.		**offensive and defensive operations** to gain and maintain **space superiority** to enable the conduct of operations by U.S. and allied land, sea, air, space, and cyberspace forces. Conduct **space operations** to enhance joint campaigns, in coordination with the other Military Services, Combatant Commands, and USG departments and agencies. 6.b.9. Conduct global integrated command and control for air and **space operations**.
Airborne Operations			
4.b.3. Conduct **airborne and air assault, and amphibious operations**. The Army has primary responsibility for the development of airborne doctrine, tactics, techniques, and equipment.			6.b.6. Provide **rapid global mobility** to employ and sustain organic air and space forces and other Military Service and USSOCOM forces, as directed, to include airlift forces for **airborne operations**, air logistical support, tanker forces for in-flight refueling, and assets for aeromedical evacuation.
ISR Operations			
4.b.12. Conduct **reconnaissance, surveillance, and target acquisition**.			6.b.4. Provide timely, global integrated **ISR capability** and capacity from forward deployed locations and globally distributed centers to support world-wide operations.
Logistics Operations			
4.b.8. Provide **logistics to joint operations** and campaigns, including joint over-the-shore and	5.b.7. Provide **naval expeditionary logistics** to enhance the deployment, sustainment, and		6.b.7. Provide **agile combat support** to enhance the air and space campaign and the deployment,

intra-theater transport of time-sensitive, mission-critical personnel and materiel.	redeployment of naval forces and other forces operating within the maritime domain, to include joint sea bases, and provide sea transport for the Armed Forces other than that which is organic to the individual Military Services and USSOCOM.		employment, sustainment, and redeployment of air and space forces and other forces operating within the air and space domains, to include joint air and space bases, and for the Armed Forces other than which is organic to the individual Military Services and USSOCOM in coordination with the other Military Services, Combatant Commands, and USG departments and agencies. 6.b.6. Provide **rapid global mobility** to employ and sustain organic air and space forces and other Military Service and USSOCOM forces, as directed, to include airlift forces for airborne operations, **air logistical support**, tanker forces for in-flight refueling, and assets for aeromedical evacuation.
Civil Affairs Operations			
4.b.4 Conduct **civil affairs operations**.			
Aeromedical Evacuation Operations			
4.b.11. Provide **intra-theater aeromedical evacuation**.			6.b.6. Provide **rapid global mobility** to employ and sustain organic air and space forces and other Military Service and USSOCOM forces, as directed, to include airlift forces for airborne operations, air logistical support, tanker forces for in-flight refueling, and **assets for aeromedical evacuation**.
Establish Initial Military Government			

4.b.6. Occupy territories abroad and **provide for the initial establishment of a military government** pending transfer of this responsibility to other authority.		5.c.6. Conduct security and stability operations and **assist with the initial establishment of a military government** pending transfer of this responsibility to other authority.	
Civil Works Programs			
4.b.10. Conduct authorized **civil works programs**, to include projects for improvement of navigation, flood control, beach erosion control, and other water resource developments in the United States, its territories, and its possessions, and conduct other civil activities prescribed by law.	5.b.4. Conduct **ocean, hydro, and river survey and reconstruction**.		
Security Operations			
		5.c.7. Provide **security** detachments and units for service on armed vessels of the Navy, provide protection of naval property at naval stations and bases, provide security at designated U.S. embassies and consulates, and perform other such duties as the President or the Secretary of Defense may direct. These additional duties may not detract from or interfere with the operations for which the Marine Corps is primarily organized.	
Personnel Recovery Operations			
			6.b.8. Conduct **global personnel recovery operations** including

			theater-wide combat and civil search and rescue, in coordination with the other Military Services, USJFCOM, USSOCOM, and DoD Components.

Appendix B. DoD Defense Agencies

Defense Agencies		
Defense Agency	**Functional Mission**	**Reference**
Defense Advanced Research Projects Agency	Serves as the research and development (R&D) organization in DoD with a primary responsibility of maintaining U.S. technological superiority over our adversaries.	U.S. Department of Defense Directive DoDD 5134.10
Defense Commissary Agency	Provide an efficient and effective worldwide system of commissaries for the resale of groceries and related household items at reduced prices to members of the uniformed services, retired members, dependents of such members, and other authorized patrons, to enhance their quality of life and to support military readiness, recruitment, and retention.	U.S. Department of Defense Directive DoDD 5105.55
Defense Contract Audit Agency	Perform all necessary contract audits for the Department of Defense and provide accounting and financial advisory services regarding contracts and subcontracts to all DoD Components responsible for procurement and contract administration. These services shall be provided in connection with negotiation, administration, and settlement of contracts and subcontracts to ensure taxpayer dollars are spent on fair and reasonable contract prices. DCAA shall provide contract audit services to other Federal agencies, as appropriate.	U.S. Department of Defense Directive DoDD 5105.36
Defense Contract Management Agency	Perform Contract Administration Services (CAS) and Contingency Contract Administration Services (CCAS) for the DoD, other authorized Federal agencies, foreign governments, international organizations, and others as authorized.	U.S. Department of Defense Directive DoDD 5105.64
Defense Finance and Accounting Service	To provide finance and accounting services and monitoring compliance with all statutory and regulatory requirements within its functional area. It also includes the consolidation, standardization, and	U.S. Department of Defense Directive DoDD 5118.05

	integration of finance and accounting requirements, functions, procedures, and DFAS-assigned information systems within the DoD, while ensuring their proper relationship with other DoD functional areas such as budget, personnel, logistics, and acquisition. The DFAS shall direct, approve, and perform finance and accounting activities for the DoD, to include coordination and collaboration with all Defense Agencies, Military Departments, and Combatant Commands. Fulfilling this mission enables the DoD to execute a world-class business operation; deliver accurate, timely, and relevant financial information; and employ enhanced technological capabilities to provide critical finance and accounting services to DoD customers and stakeholders.	
Defense Information Systems Agency	Responsible for planning, engineering, acquiring, testing, fielding, and supporting global net-centric information and communications solutions to serve the needs of the President, the Vice President, the Secretary of Defense, and the DoD Components, under all conditions of peace and war.	U.S. Department of Defense Directive DoDD 5105.19
Defense Intelligence Agency	Satisfy the military and military-related intelligence requirements of the Secretary and Deputy Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the DNI, and provide the military intelligence contribution to national foreign intelligence and counterintelligence. DIA shall plan, manage, and execute intelligence operations during peacetime, crisis, and war. DIA shall serve as the DoD lead for coordinating intelligence support to meet COCOM requirements; lead efforts to align analysis, collection, and Intelligence, Surveillance, and Reconnaissance (ISR) activities with all operations; and link and synchronize Military, Defense, and National	U.S. Department of Defense Directive DoDD 5105.21

	Intelligence capabilities.	
Defense Legal Services Agency	Provide legal advice, services, and support to the Defense Agencies, DoD Field Activities, and, as assigned, other organizational entities within the DoD; administer the DoD Standards of Conduct Program; support and assist the Assistant Secretary of Defense for Legislative Affairs (ASD(LA)) in developing the DoD Legislative Program; oversee DoD personnel security processes as authorized by DoDD 5145.3 (Reference (d)) and in accordance with applicable issuances, including DoD Instruction (DoDI) 5220.22 (Reference (e), DoDD 5200.02 (Reference (f)) and DoD 5200.2-R (Reference (g)); and provide fair and impartial administrative procedures through the Defense Office of Hearings and Appeals (DOHA).	U.S. Department of Defense Directive DoDD 5145.04
Defense Logistics Agency	Function as an integral element of the military logistics system of the Department of Defense to provide effective and efficient worldwide logistics support to the Military Departments and the Combatant Commands under conditions of peace and war, as well as to other DoD Components and Federal agencies, and, when authorized by law, State and local government organizations, foreign governments, and international organizations.	U.S. Department of Defense Directive DoDD 5105.22
Defense Security Cooperation Agency	Directs, administers, and provides DoD-wide guidance to the DoD Components and DoD representatives to U.S. missions abroad for the execution of DoD security assistance and security cooperation programs over which DSCA has responsibility.	U.S. Department of Defense Directive DoDD 5105.65
Defense Security Service	Manage and administer the DoD portion of the National Industrial Security Program (NISP) for the DoD Components and, by mutual agreement, other U.S. Government (USG) departments and agencies; provide security education and training products	U.S. Department of Defense Directive DoDD 5105.42

	and services; administer the industrial portion of the DoD Personnel Security Program (PSP), except for those cases that DSS refers to the Defense Office of Hearings and Appeals (DOHA); provide authorized counterintelligence (CI) services; and manage and operate the associated program-specific information technology (IT) systems. The DSS shall also support DoD efforts to improve security programs and processes.	
Defense Threat Reduction Agency	Safeguard the United States and its allies from weapons of mass destruction (WMD) threats globally. DTRA has a unique role in DoD efforts regarding countering weapons of mass destruction (CWMD), and supports a broad range of activities across the CWMD mission. DTRA provides integrated technical and operational solutions, as well as intellectual capital, to inform and support both DoD and national-level policies and strategies to address WMD threats to the homeland as well as to the warfighter. As such, DTRA supports the CWMD activities of the U.S. Government (USG) and its allies at the nexus between WMD and terrorism.	U.S. Department of Defense Directive DoDD 5105.62
Missile Defense Agency	Manage, direct, and execute the development of the BMDS in accordance with National Security Presidential Directive 23 (Reference (h)) and to achieve DoD priorities to: a. Defend the United States, deployed forces, allies, and friends from ballistic missile attacks of all ranges in all phases of flight. b. Develop and deploy, as directed, a layered BMDS. c. Enable the fielding of elements of the BMDS as soon as practicable. d. Provide capability in blocks, improving the effectiveness of fielded capability by inserting new technologies as they become available.	U.S. Department of Defense Directive DoDD 5134.09
National	Support U.S. national security objectives	U.S. Department of

Geospatial-Intelligence Agency	by providing timely, relevant, and accurate geospatial intelligence (GEOINT) to the Department of Defense, the Intelligence Community (IC), and other U.S. Government (USG) departments and agencies; conducting other intelligence-related activities essential for U.S. national security; providing GEOINT for safety of navigation information; preparing and distributing maps, charts, books, and geodetic products; designing, developing, operating, and maintaining systems related to the processing and dissemination of GEOINT; and providing GEOINT in support of the combat objectives of the Armed Forces of the United States.	Defense Directive DoDD 5105.60
National Reconnaissance Office	Responsible for research and development (R&D), acquisition, launch, deployment, and operation of overhead reconnaissance systems, and related data-processing facilities to collect intelligence and information to support national and DoD missions and other United States Government (USG) needs.	U.S. Department of Defense Directive DoDD 5105.23
National Security Agency/Central Security Service	U.S. Government (USG) lead for cryptology, and its mission encompasses both Signals Intelligence (SIGINT) and Information Assurance (IA) activities. The Central Security Service (CSS) conducts SIGINT collection, processing, analysis, production, and dissemination, and other cryptologic operations as assigned by the Director, NSA/Chief, CSS (DIRNSA/CHCSS). NSA/CSS provides SIGINT and IA guidance and assistance to the DoD Components, as well as national customers, pursuant to References (d) and (e). The DIRNSA/CHCSS serves as the principal SIGINT and IA advisor to the Secretary of Defense, the Under Secretary of Defense for Intelligence (USD(I)), the	U.S. Department of Defense Directive DoDD 5100.20

	Assistant Secretary of Defense for Networks and Information Integration/DoD Chief Information Officer (ASD(NII)/DoD CIO), the Chairman of the Joint Chiefs of Staff, the Combatant Commanders, the Secretaries of the Military Departments, and the DNI, as well as other USG officials with regard to these missions and the responsibilities enumerated herein.	
Pentagon Force Protection Agency	Provide force protection, security, and law enforcement to safeguard personnel, facilities, infrastructure, and other resources for the Pentagon Reservation and for assigned DoD activities and DoD-occupied facilities within the National Capital Region (NCR) (hereafter referred to as the "Pentagon Facilities"). This includes addressing the full spectrum of threats by utilizing a balanced strategy of comprehensive protective intelligence analysis, prevention, preparedness, detection, all-hazards response, DoD crisis management, and support to the lead emergency management agency. PFPA will be the DoD focal point for collaboration and coordination with other DoD Components, other Executive Departments and Agencies, and State and local authorities on matters involving force protection, security, and law enforcement activities that impact the Pentagon Facilities. PFPA will also provide comprehensive threat assessments, security, and protection services for OSD personnel and other DoD persons, as assigned.	U.S. Department of Defense Directive DoDD 5105.68

DoD Field Activities		
Field Activity	**Functional Mission**	**Reference**
Defense Media Activity	3.1. Provide a wide variety of information products to the entire DoD family (Active, Guard, and Reserve Military Service members, dependents, retirees, DoD civilians, and contract employees) and external audiences through all available media, including: motion and still imagery; print; radio; television; Web and related emerging Internet, mobile, and other communication technologies. 3.2. Communicate messages and themes from senior DoD leaders (Secretary of Defense, Secretaries of the Military Departments, Chairman of the Joint Chiefs of Staff, Military Service Chiefs of Staff, Combatant Commanders), as well as other leaders in the chain-of-command, in order to support and improve quality of life and morale, promote situational awareness, provide timely and immediate force protection information, and sustain readiness. 3.3. Provide U.S. radio and television news, information, and entertainment programming to Active, Guard, and Reserve Military Service members, DoD civilians and contract employees, and their families overseas, on board Navy and Coast Guard ships, and other authorized users. 3.4. Provide, throughout the Department of Defense and to the American public, high quality visual information products, including Combat Camera imagery depicting U.S. military activities and operations. 3.5. Provide joint education and training for military and civilian personnel in the public affairs, broadcasting, and visual information career fields to meet DoD-wide entry level skills and long-term career development requirements.	U.S. Department of Defense Directive DoDD 5105.74
Defense POW/Missing	Leads the national effort to account for personnel, including members of the Armed	U.S. Department of Defense Directive

Personnel Office	Forces on active duty, DoD civilian employees, or employees of a DoD contractor, missing as a result of hostile action, and establishes the conditions necessary to recover those who become isolated during operations.	DoDD 5110.10
Defense Technical Information Center	Central scientific, research, and engineering information support activity for the Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) in facilitating his or her duties, in accordance with DoDD 5134.3 (Reference (c)), and executing the programs and functions of the DoD Scientific and Technical Information Program (STIP), as specified in DoDD 3200.12 and DoD Instruction (DoDI) 3200.14 (References (d) and (e)).	U.S. Department of Defense Directive DoDD 5105.73
Defense Technology Security Administration	Administer, consistent with U.S. policy, national security objectives, and Federal laws and regulations, the development and implementation of DoD technology security policies on international transfers of defense-related goods, services, and technologies to ensure that critical U.S. military technological advantages are preserved; transfers that could prove detrimental to U.S. security interests are controlled and limited; proliferation of weapons of mass destruction and their means of delivery is prevented; diversion of defense-related goods to terrorists is prevented; legitimate defense cooperation with foreign friends and allies is supported; and the health of the defense industrial base is assured.	U.S. Department of Defense Directive DoDD 5105.72
DoD Education Activity	The mission of DoDEA is to provide an exemplary education by effectively and efficiently planning, directing, and overseeing the management, operation, and administration of the DoD Domestic Dependent Elementary and Secondary Schools (DDESS) and the DoD Dependents Schools (DoDDS), which provide instruction from preschool through grade 12 to eligible dependents.	U.S. Department of Defense Directive DoDD 1342.20
DoD Human Resources Activity	Enhances the operational effectiveness and efficiency of diverse programs supporting	U.S. Department of Defense Directive

	the Department of Defense. DoDHRA combines centralized management of operations and administrative oversight with decentralized program guidance. It supports policy development, develops products and services that promote and sustain a high performing workforce, performs research and analysis, supports readiness and departmental reengineering efforts, manages personnel data repositories, prepares future civilian leaders through developmental programs, supports recruiting and retention, and delivers both benefits and critical services to warfighters and their families. DoDHRA administers sexual assault prevention policies and programs, assists in establishing and administering language capabilities policies, and oversees central management of commercial travel.	DoDD 5100.87
DoD Test Resource Management Center	Plan for and assess the adequacy of the Major Range and Test Facility Base (MRTFB), as defined by section 196 of reference (a) and, as described in DoD Directive 3200.11 (reference (b)), to provide adequate testing in support of development, acquisition, fielding, and sustainment of defense systems; and, maintain awareness of other T&E facilities and resources, within and outside the Department, and their impacts on DoD requirements.	U.S. Department of Defense Directive DoDD 5105.71
Office of Economic Adjustment	Provide assistance to communities, regions, and States adversely impacted by significant defense program changes including base closures, realignments, or expansions; defense industry cutbacks; encroachment; and personnel reductions or increases.	U.S. Department of Defense Directive DoDD 3030.01
TRICARE Management Activity	4.1. Manage TRICARE; 4.2. Manage and execute the Defense Health Program (DHP) Appropriation and the DoD Unified Medical Program; and 4.3. Support the Uniformed Services in implementation of the TRICARE Program	U.S. Department of Defense Directive DoDD 5136.12

	and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS).	
Washington Headquarters Services	Provide a broad range of administrative, management, and common support services, including human resources and security clearance services, facilities and facility operations, information technology (IT) capabilities and services, financial management, acquisition and contracting, and secure communications. It also provides oversight of designated DoD-wide statutory and regulatory programs, supporting DoD Components and other federal entities as directed and assigned. WHS operates and maintains the Pentagon Reservation and designated facilities in the National Capital Region (NCR).	U.S. Department of Defense Directive DoDD 5110.04

Appendix C. Consolidated Results for IQ 2 (Using Lowest Rates)

	Size of Force (#) Table 5	Budget Request Amount ($Million) Table 6	Rate ($Million/Unit of Function) Table 7	Budget Request Estimate ($Million) Table 8	Estimated Savings ($Million)
1. Personnel					
Active Duty Officer Personnel	99800	11148	0.1117	11148	0
	51300	8006	0.1561	5730	2276
	21200	2866	0.1352	2368	498
	64400	9131	0.1418	7193	1938
TOTAL					4712
Active Duty Enlisted Personnel	447800	27276	0.0609	26644	632
	266900	18840	0.0706	15881	2959
	176100	10478	0.0595	10478	0
	259700	17822	0.0686	15452	2370
TOTAL					5961
Civilian Personnel	255900	9117	0.0356	9117	0
	188500	8140	0.0432	6711	1429
	23600	1658	0.0703	840	818
	184100	8360	0.0454	6554	1806
TOTAL					4053
Cadets	4500	78	0.0173	77	1
	4500	77	0.0171	77	0
	0	0	0	0	0
	3900	70	0.0179	67	3
TOTAL					4
PCS Moves	266800	1787	0.0067	1521	266
	162100	1031	0.0064	924	107
	99900	566	0.0057	566	0
	147300	1290	0.0088	840	450
TOTAL					823
2. Operations and Maintenance					
2.1. Air Operations					
Flying Hours	293000	731	0.0025	731	0

	105400	6053	0.0057	2635	3418
	117000	4778	0.0041	2925	1853
TOTAL					5271
Total Aircraft Inventory*	1938	589	0.3039	589	0
	3983	3499	0.8785	1210	2289
	5239	10773	2.0563	1592	9181
TOTAL					11470
2.2. Land Operations					
Divisions	18	21117	1173.3	21117	0
	--	--	--	--	
	4	5348	1337.0	4693	655
	--	--	--	--	
TOTAL					655
Combat Vehicle Depot Maintenance	111	84	0.7568	67	17
	--	--	--	--	
	165	99	0.6000	99	0
	--	--	--	--	
TOTAL					17
2.3. Space Operations					
Supported Satellites in Orbit	--	--	--	--	
	9	239	26.555	71	168
	--	--	--	--	
	62	489	7.887	489	0
TOTAL					168
2.4. Air and Missile Defense Operations					
Interceptors/Radars Supported	220	115	0.5227	115	0
	134	86	0.6418	70	16
	--	--	--	--	
	8	59	7.3750	4	55
TOTAL					71
2.5. ISR Operations					
UAVs	2115	12	0.0057	12	0
	3194	60	0.01878	18	42
	235	248	1.0553	1	247
TOTAL					289
2.6. Base Operations Support & Service-wide Support Activities					
Total Cost	808000	13034	0.0161	9938	3096

	732000	8997	0.0123	8997	0
	512000	7810	0.0152	6298	1512
TOTAL					4608
2.7. Recruiting and Training					
Total Training Population	808000	4138	0.0051	2343	1795
	511000	1464	0.0029	1464	0
	221000	689	0.0031	641	48
	512000	3521	0.0069	1485	2036
TOTAL					3879
Enlisted Recruits	35600	581	0.0163	185	396
	29500	256	0.0085	153	103
	25500	187	0.0073	133	54
	28400	148	0.0052	148	0
TOTAL					553
2. Procurement					
3.1. Aircraft					
Fighter/Attack Aircraft	0	0	0	0	0
	48	5475	114.06	5475	0
	0	0	0	0	
	19	3124	164.42	2167	957
TOTAL					957
Rotary Wing Aircraft	179	4125	23.045	4125	0
	54	3096	57.333	1244	1852
	27	791	29.296	622	169
	4	294	73.500	92	202
TOTAL					2223
Tactical Airlift/Support Aircraft	2	19	9.500	19	0
	51	3586	70.314	485	3101
	0	0	0	0	0
	7	539	77.000	67	472
TOTAL					3573
Strategic UAVs	19	534	28.105	396	138
	6	125	10.833	125	0
	0	0	0	0	0
	24	885	36.875	500	385
TOTAL					523
Aircraft Modifications (TAI)	1938	1277	0.6588	987	290
	3983	2029	0.5094	2029	0

	5239	3610	0.6891	2669	941
TOTAL					1231
Repair/Spare Parts & Support (TAI)	1938	376	0.1940	376	0
	3983	1658	0.4162	773	885
	5239	2053	0.3919	1016	1037
TOTAL					1922
3.2. Land Vehicles					
Tactical/Support Vehicles	3831	506	0.1321	506	0
	--	--	--	--	
	40	37	0.9325	5	32
	--	--	--	--	
TOTAL					32
3.3. Munitions and Missiles					
Air to Ground Munitions	--	--	--	--	
	280	128	0.4571	46	82
	--	--	--	--	
	3403	558	0.1640	558	0
TOTAL					82
Tactical Missiles	2008	448	0.2231	448	0
	389	1017	2.6144	87	930
	--	--	--	--	
	434	144	0.3318	97	47
TOTAL					977
3.4. Air and Missile Defense					
Interceptors/Radars	43	1338	31.116	1338	0
	9	390	43.333	280	110
	--	--	--	--	
	--	--	--	--	
TOTAL					110
4. Military Construction					
Square Feet Maintained	962	4017	4.1757	4017	0
	491	2101	4.2790	2049	52
	178	825	4.6348	743	82
	634	2646	4.1735	2646	0
TOTAL					134
5. Family Housing					
Adequate Housing Units Maintained	9888	530	0.0536	217	313
	5726	263	0.0459	125	138
	798	18	0.0226	17	1

	26556	582	0.0219	582	0
				TOTAL	452
				TOTAL ESTIMATED SAVINGS	**55211**

Appendix D. Sensitivity Analysis for IQ 2
(Benchmarked Budget Estimates using 2nd Lowest Rates from Table 7.)

	Size of Force (#) Table 5	Budget Request Amount ($Million) Table 6	Rate ($Million/Unit of Function) Table 7	Budget Request Estimate ($Million) Table 8	Estimated Savings ($Million)
1. Personnel					
Active Duty Officer Personnel	99800	11148	0.1117	13493	+2345
	51300	8006	0.1561	6936	1070
	21200	2866	*0.1352*	2866	0
	64400	9131	0.1418	8707	424
TOTAL					+851
Active Duty Enlisted Personnel	447800	27276	*0.0609*	27276	0
	266900	18840	0.0706	16254	2586
	176100	10478	0.0595	10724	+246
	259700	17822	0.0686	15816	2006
TOTAL					4346
Civilian Personnel	255900	9117	0.0356	11055	+1938
	188500	8140	*0.0432*	8140	0
	23600	1658	0.0703	1020	638
	184100	8360	0.0454	7953	407
TOTAL					+893
Cadets	4500	78	*0.0173*	78	0
	4500	77	0.0171	78	+1
	0	0	0	0	0
	3900	70	0.0179	67	3
TOTAL					2
PCS Moves	266800	1787	0.0067	1708	79
	162100	1031	*0.0064*	1031	0
	99900	566	0.0057	639	+73
	147300	1290	0.0088	943	347
TOTAL					353
2. Operations and Maintenance					
2.1. Air Operations					
Flying Hours	293000	731	0.0025	1201	+470

	1054000	6053	0.0057	4321	1732
	1170000	4778	*0.0041*	4778	0
TOTAL					1262
Total Aircraft Inventory*	1938	589	0.3039	1703	+1114
	3983	3499	*0.8785*	3499	2289
	5239	10773	2.0563	4602	6171
TOTAL					7346
2.2. Land Operations					
Divisions	18	21117	1173.3	24066	+2949
	--	--	--	--	
	4	5348	*1337.0*	5348	0
	--	--	--	--	
TOTAL					+2949
Combat Vehicle Depot Maintenance	111	84	*0.7568*	84	0
	--	--	--	--	
	165	99	0.6000	125	+26
	--	--	--	--	
TOTAL					+26
2.3. Space Operations					
Supported Satellites in Orbit	--	--	--	--	
	9	239	*26.555*	239	0
	--	--	--	--	
	62	489	7.887	1646	+1157
TOTAL					+1157
2.4. Air and Missile Defense Operations					
Interceptors/Radars Supported	220	115	0.5227	141	+26
	134	86	*0.6418*	86	0
	--	--	--	--	
	8	59	7.3750	5	54
TOTAL					28
2.5. ISR Operations					
UAVs	2115	12	0.0057	40	+28
	3194	60	*0.01878*	60	0
	235	248	1.0553	4	244
TOTAL					216
2.6. Base Operations Support & Service-wide Support Activities					
Total Cost	808000	13034	0.0161	12282	752

	732000	8997	0.0123	11126	+2129
	512000	7810	*0.0152*	7810	0
TOTAL					+1377
2.7. Recruiting and Training					
Total Training Population	808000	4138	0.0051	2505	1633
	511000	1464	0.0029	1584	+120
	221000	689	*0.0031*	689	0
	512000	3521	0.0069	1485	1587
TOTAL					3100
Enlisted Recruits	35600	581	0.0163	260	321
	29500	256	0.0085	215	41
	25500	187	*0.0073*	187	0
	28400	148	0.0052	207	+59
TOTAL					303
2. Procurement					
3.1. Aircraft					
Fighter/Attack Aircraft	--	--	--	--	
	48	5475	114.06	7892	+2417
	--	--	--	--	
	19	3124	*164.42*	3124	0
TOTAL					+2417
Rotary Wing Aircraft	179	4125	23.045	5244	+1119
	54	3096	57.333	1582	1514
	27	791	*29.296*	791	0
	4	294	73.500	117	177
TOTAL					572
Tactical Airlift/Support Aircraft	2	19	9.500	141	+122
	51	3586	*70.314*	3586	3101
	--	--	--	--	
	7	539	77.000	492	47
TOTAL					3026
Strategic UAVs	19	534	*28.105*	534	0
	6	125	10.833	169	+44
	0	0	0	0	0
	24	885	36.875	675	210
TOTAL					166
	1938	1277	*0.6588*	1277	0
	3983	2029	0.5094	2624	+595

Aircraft Modifications (TAI)	5239	3610	0.6891	3451	159
TOTAL					+436
Repair/Spare Parts & Support (TAI)	1938	376	0.1940	760	+384
	3983	1658	0.4162	1561	97
	5239	2053	*0.3919*	2053	0
TOTAL					+287
3.2. Land Vehicles					
Tactical/Support Vehicles	3831	506	0.1321	3572	+3066
	--	--	--	--	
	40	37	*0.9325*	37	0
	--	--	--	--	
TOTAL					+3066
3.3. Munitions and Missiles					
Air to Ground Munitions	--	--	--	--	
	280	128	*0.4571*	128	0
	--	--	--	--	
	3403	558	0.1640	1556	+998
TOTAL					+998
Tactical Missiles	2008	448	0.2231	666	+218
	389	1017	2.6144	129	888
	--	--	--	--	
	434	144	*0.3318*	144	0
TOTAL					670
3.4. Air and Missile Defense					
Interceptors/Radars	43	1338	31.116	1863	+525
	9	390	*43.333*	390	0
	--	--	--	--	
	--	--	--	--	
TOTAL					+525
4. Military Construction					
Square Feet Maintained	962	4017	*4.1757*	4017	0
	491	2101	4.2790	2050	51
	178	825	4.6348	743	82
	634	2646	4.1735	2647	+1
TOTAL					132
5. Family Housing					
Adequate Housing Units Maintained	9888	530	0.0536	223	307
	5726	263	0.0459	129	134
	798	18	*0.0226*	18	0

	26556	582	0.0219	600	+18
				TOTAL	423
				TOTAL ESTIMATED SAVINGS	**6963**

* Budget request data is a summation of all activities supporting air operations, minus budgeted amount for flying hours, in support of TAI.

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Vita

Captain Luke R. Stover graduated from Fountain-Fort Carson High School in Fountain, Colorado. He entered undergraduate studies at Montana State University in Bozeman, Montana where he graduated with a Bachelor of Science degree in Environmental Sciences in May 2005. He was commissioned through Detachment 450 AFROTC at Montana State University where he was recognized as a Distinguished Graduate and nominated for a Regular Commission.

His first assignment was to Elmendorf AFB, Alaska as a Munitions Maintenance Officer in September 2005. While there he served as the 3rd Wing Executive Officer and Assistant Aircraft Maintenance Unit Officer in Charge of the 525th Aircraft Maintenance Unit. In addition, he deployed as Assistant Aircraft Maintenance Unit Officer in Charge of the 90th Aircraft Maintenance Unit in support of Operation Enduring Freedom.

In August 2009, he was assigned to the 86th Munitions Squadron, Ramstein AB, Germany as the Materiel Flight Commander and Munitions Accountable Systems Officer. Later, he served as the Operations Officer for the 86th Munitions Squadron and the Munitions Accountable Systems Officer for Camp Lemonnier, Djibouti.

In March 2012, he was selected to attend the USAF Advanced Maintenance and Munitions Officer School at Nellis AFB, Nevada where he received the Academic Award, Outstanding Paper Award, and was recognized as a Distinguished Graduate.

In August 2012, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, Captain Stover will be assigned to the 576th Flight Test Squadron at Vandenberg AFB, California.

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14. ABSTRACT
This research examined the potential financial and non-financial benefits of working towards reengineering the Department of Defense (DoD) through the adaptation of a functionally-aligned, unified organizational structure. Based on historical analysis of the DoD's current structure, a proposed DoD structure is presented that aligns operational functions under functional corps and support functions under existing defense-wide agencies and field activities. An analysis of overlapping functionality between services provided the basis for quantitative analysis of size-of-force and budget request data for Fiscal Year 2013 (FY2013). This analysis enabled the comparison of operational efficiency between services. These rates were used to benchmark operational efficiency across the DoD. An estimate of savings for each function was assessed by comparing the actual budget request for FY2013 against the estimated budget request under the proposed structure. Through sensitivity analysis, estimated savings from these functional areas ranged between $7 Billion and $100 Billion for FY2013. Analysis of existing literature highlighted non-financial implications of adopting a functionally-aligned, unified DoD structure. Recommendations for future research include the need for an Activity-Based Costing and Budgeting system to identify actual costs of DoD functions.

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