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Assessment of the United States National Security Space Management and Organization

Charles G. Simpson

ASSESSMENT OF THE UNITED STATES NATIONAL SECURITY SPACE MANAGEMENT AND ORGANIZATION

by

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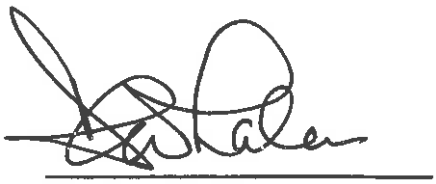
This thesis, submitted by Charles G. Simpson in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done, and is hereby approved.



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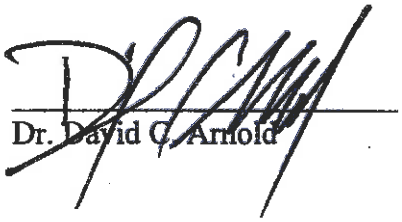

Dr. David C. Arnold

This thesis is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.

Wayne Swisher
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May 5, 2015
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Charles G. Simpson
March 27, 2015

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ABSTRACT

This research analyzes the results of the Report of the Commission to Assess the United States National Security Space Management and Organization, dated January 11, 2001 in order to determine which recommendations were beneficial, which recommendations are still in effect and what additional measures should be undertaken to continue, and even advance, our standing as a premier space power. It analyzes the potential managerial and organizational shortcomings of National Security Space within the United States Government, specifically the Department of Defense. Additionally, this paper reviews the various management and organizational force restructuring which occurred as a result of the commission's report and other recommendations / directives from the time period. Many dynamics have changed with regard to national security space in the thirteen years since the commission's report was released. This paper will identify the significant effects of these decisions and which mitigating actions should now be undertaken to offset any unintended consequences and shortfalls. The study will show the importance of the national security space managerial and organizational structure in order to validate the essentiality, viability and efficacy of this program. A literature review of a number of peer-reviewed documents, government / military archives, interviews and related texts have been researched in an effort to fully vet this process. This paper provides a sound analysis to ascertain any managerial and

organizational shortcomings to National Security Space and to recommend possible restructuring in order to streamline our processes.

CHAPTER I

INTRODUCTION

This research paper is focused on analyzing the recommendations of the Commission to Assess United States National Security Space Management and Organization, more commonly known as the 2001 Space Commission Report or, even more colloquially, the Rumsfeld Report on Space. The commission was directed by Congress in Public Law 106-65, Section 1623, of the National Defense Authorization Act for Fiscal Year 2000. The commission members consisted of the Honorable Duane P. Andrews; Mr. Robert V. Davis; United States Air Force General (Ret) Howell M. Estes, III; United States Air Force General (Ret) Ronald R. Fogleman; United States Army Lieutenant General Jay M. Garner; the Honorable William R. Graham; United States Air Force General (Ret) Charles A. Horner; United States Navy Admiral (Ret) David E. Jeremiah; United States Air Force General (Ret) Thomas S. Moorman, Jr.; Mr. Douglas H. Necessary; United States Army General (Ret) Glenn K. Otis; the Honorable Donald H. Rumsfeld (Chairman); United States Senator (Ret) Malcolm Wallop, R-WY. Many of the military members were former commanders of North American Aerospace Defense Command (NORAD), Air Force Space Command (AFSPC), and the United States Space Command. Of the civilian appointees, there is a former U.S. Senator, past deputy director of NASA, professional staff members for the House of Representatives, and a previous (and future) Secretary of Defense. Some critics have derided the report as being

too right-wing, alarmist and one-sided; mainly staffed with members of the military-industrial complex. Given the commission members' backgrounds it is easy to make that allegation, but the overall report seems prudent and worth review.

The Commission met for approximately six months and delivered its report on January 11, 2001. The Commission interviewed many military, intelligence community, government and industry leaders in order to ascertain the current state and future of national security space. This impressive list of interviewees included former commanders and vice commanders of Air Force Space Command, U.S. Space Command, North American Aerospace Defense Command (NORAD), former directors and deputy directors of the Central Intelligence Agency (CIA), National Imaging and Mapping Agency (NIMA; now known as National Geospatial-Intelligence Agency or NGA), National Reconnaissance Office (NRO), and National Aeronautics and Space Administration (NASA).

As the Commission stated in its Executive Summary, its original charter was to assess the near-term, mid-term, and long-term changes which should be implemented to improve the management and organization of national security space. The commission decided to address just the near and mid-term issues as they believed that long-term solutions could be better emphasized through Presidential leadership in space policy. The commission believed that Executive level involvement and focus on the space enterprise would have more impact on changes to long-term issues. The commission made ten specific unanimous recommendations for improvements in National Security Space and advocated that they be taken as a whole. (pgs 31-35 EXSUM). Further, the

Commission identified five unanimous conclusions which encapsulated the ten recommendations for additional emphasis. (pgs 99-100 Commission Report)

The United States Government has divided space into four categories or sectors: Civil, Commercial, Military and Intelligence. NASA, along with NOAA and USGS, handle the preponderance of the civil sector and there has developed a plethora of commercial companies over the years which have been eager to pursue commercial space interests. That leaves the two remaining areas of space, military and intelligence. These two areas have been grouped together as "national security space" over the years and leads to a foundational question, "What exactly is National Security Space?" It has come to represent the collaborative efforts between the Department of Defense and Intelligence Community with regard to space. Department of Defense Directive (DoDD) 3100.10 defines national security space as, "The space-related systems, services, capabilities, and associated information networks of the Department of Defense and the national intelligence community, or other space-related systems that the Secretary of Defense may designate as national security space systems in coordination with the system owner, that support U.S. national security and enable defense and intelligence operations during times of peace, crisis, or conflict." Gaining an understanding of national security space is imperative to determining what it encompasses, how it came to be, how it is presently structured and how it might be improved.

The term, national security, is relatively straightforward and alludes to protecting the security of our nation and its citizens. Protecting, or securing, national interests so that our nation has the freedom to operate as it deems necessary is essential to its status and to its sovereignty. There are numerous areas that affect our national security; from

access to energy and natural resources, to access to domestic and international commerce, to military superiority (or at least parity), to environmental stability to, in more recent times, cyber-security. The space domain is not unlike the other media of land, sea and air; accordingly it has evolved over the last seventy years to become an area that greatly influences and enhances our national security. Department of Defense Joint Publication 1 defines national power as having four elements; diplomatic, information, military and economic (DIME). Many elements of national power would suffer greatly without unfettered access to space. Simply put, National Security Space is the securing, and / or protecting, our access to and maneuverability in space in order to carry out our national interests.

Purpose for Research

It would seem obvious that National Security Space has become a vital aspect of daily life and our national interests. For over 60 years, every President from Eisenhower to Obama has discussed the importance of space and the need for a coherent space policy. Each administration issues directives, guidance, visions and policies about space. While much of the presidential policies and guidance advocate the correct emphasis and priority, there has been little follow up or progress made at the senior government levels. As Roger Launius noted in his book, "Spaceflight and the Myth of Presidential Leadership", the mere fact that a president advocates for a more robust space policy, space exploration, space deterrence, or space synchronization doesn't guarantee that the space enterprise will receive any additional emphasis or achieve more notable goals. This can be for a variety of conflicting reasons from economic to political to international concerns. Internally though, the U.S. Government should position and structure National

Security Space to take full advantage of the space medium to avoid a "Space Pearl Harbor" as the Commission warned against in its Report. This is the main emphasis of this research; to examine the findings of the Space Commission, determine which recommendations / conclusions were enacted, and what may be done to improve the current management and organization of National Security Space.

Statement of the Problem

Is the current managerial and organizational structure of National Security Space conducive to effective space operations and does it provide a means to deter / defeat potential space adversaries? I would submit that it does not, but there have been huge strides within the Department of Defense, the Intelligence Community and the senior levels of U.S. Government. Lieutenant General J. Kevin McLaughlin, USAF, states it well in the title of his article in the US Air Force journal, High Frontier. His article is titled, *"The Space Commission: 10 Years Later, But Not Quite 10 Years Closer"*. As a Lieutenant Colonel at the time, now Lt Gen McLaughlin actually served as a staff member for the Commission and is able to provide some unique analysis. While there has been much good work within the Department of Defense and the Intelligence Community, the Space Commission's recommendations were not "taken as a whole" and there has been no major restructuring efforts at the senior U.S. Government levels which would make it more conducive to achieve the Commission's recommendations.

This sentiment is reiterated in another article in the same journal. US Air Force General (Ret) Howell M. Estes, III titled his article, *"The Space Commission: 10 Years Later – Still a Work in Progress"*. It seems to be a common agreement that we have

achieved impressive accomplishments within National Security Space management and organization, but that we are not operating at the optimal level.

Therefore, I plan to focus on the Commission's recommendations and conclusions to determine which actions were implemented, did they have the desired effect and what actions remain to ensure that the U.S. is able to remain a leading space power and able to maintain a viable National Security Space Strategy.

CHAPTER II

AN ANALYSIS OF THE REPORT OF THE COMMISSION TO ASSESS UNITED STATES NATIONAL SECURITY SPACE MANAGEMENT AND ORGANIZATION

The primary document to review in the research for this paper is the actual Commission's Report. In the following sections I will systematically outline the Report's Charter, Scope, Organization, Recommendation, and Conclusions. I will also analyze the "Implementation Guidance" signed by Secretary of Defense (SECDEF) Rumsfeld of which recommendations he endorsed to be implemented from the Commission's Report. Interspersed throughout my analysis will be commentary from other sources which may amplify, verify or contradict statements from the Commission's Report and the SECDEF's Guidance.

The Commission's Charter

Originally, the commission was tasked to assess the near-term, mid-term, and long-term changes which should be implemented to improve the management and organization of national security space. The commission decided to just address the near and mid-term issues as they believed that long-term solutions could be better emphasized through Presidential leadership in space policy. The commission believed that Executive level involvement and focus on the space enterprise would have more impact on changes to long-term issues.

The commission was directed to look at the "potential costs and benefits" of creating a separate military department (a space corps) or merely carve out a separate corps within the Air Force specifically to address national security space missions. Additionally, it was to look at the possibility of establishing an Assistant Secretary of Defense for Space as the point man for corralling national security space issues. From a financial perspective, the commission was directed to examine establishing a "major force program", an accounting classification, which would enable the U.S. government to better manage how much was being spent on space missions and to whom the money was going.

The Commission's Scope

The commission used the space missions and functions contained in the 1996 National Space Policy which included an incredible variety of agencies and organizations who had an "interest" in space activities. (Figure 1) The sheer magnitude of agencies which affect space activities is daunting and overwhelming as evidenced in the preceding figure. In order to narrow the focus of the report the commission decided to just consider the space assets pertaining to the Department of Defense (DoD) and the Intelligence Community (IC), in other words, "national security space". The Commission did consider the civil and commercial space sectors, but only as they influenced DoD and IC space activities.

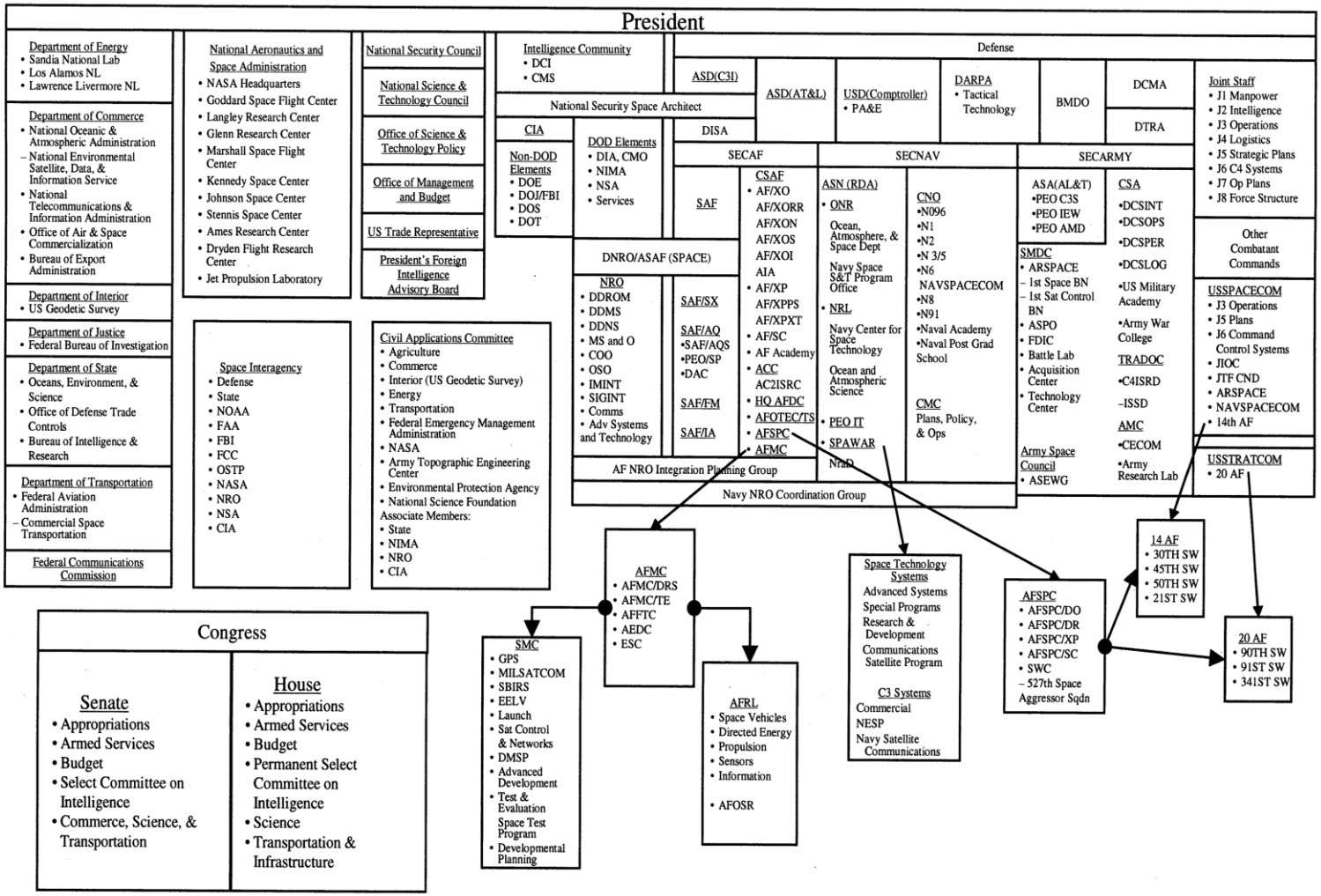

Figure 1. U.S Government organizations currently involved in space activities

Source: Report of the Commission to Assess United States National Security Space Management and Organization

Organization of the Commission's Report

As stated in the Commission's Report it was organized in the following five sections:

- The role for space in future national security affairs and the challenges the U.S. is likely to confront to its commercial, civil, defense and intelligence interests
- Objectives for advancing U.S. interests in space by enabling and encouraging development of policies, personnel, technologies and operations essential to maintaining U.S. leadership
- U.S. agencies involved in national security space as a basis for understanding current practices and identifying alternative approaches to organization and management
- Current management of space activity at the national level, within the Department of Defense and within the Intelligence Community
- Recommendations for organization and management, including specific proposals to address discrete issues and problems identified in the course of the Commission's deliberations

Commission's Ten Recommendations

As previously discussed, the Commission to Assess United States National Security Space Management and Organization, as established by Public Law 165-05 which was the National Defense Authorization Act for Fiscal Year 2000, released its report on January 11, 2001. The Commission unanimously cited ten recommendations and highlighted five conclusions and suggested that they be "taken as a whole". In other words, the commission's recommendations were interconnected and dependent on each

other. Breaking up the recommendations would not have the same effect, or achieve the same results, as they would when enacted in their entirety. The Commission's ten recommendations were as cited below:

1. Presidential Leadership – "The President should consider establishing space as a national security priority." Each president since Eisenhower has had a distinct interest in this new medium of space; each attaching varying degrees of importance and criticality, but only recently has it evolved to become a top national security priority. In fact, the term "national security space" did not appear in National Space Policy documents until President Reagan's 1988 version. It may have appeared ten years earlier in President Carter's PD/NSC-37, but the document is difficult to decipher due to it being the heavily redacted copy available to the public.

2. Presidential Space Advisory Group – "The President should consider the appointment of a Presidential Space Advisory Group to provide independent advice on developing and employing new space capabilities."

3. Senior Interagency Group for Space – "The President should direct that a Senior Interagency Group for Space be established and staffed within the National Security Council structure." Recommendations Two and Three point to the Commission's evaluation of the current (as of the Fiscal Year 2000 timeframe) national security space organization and management structure, especially at the senior levels. Figure 2 displays how the National Security Space enterprise was structured in FY 2000 and Figure 3 shows some recommendations from the Commission of how to improve its processes at the senior levels of government.

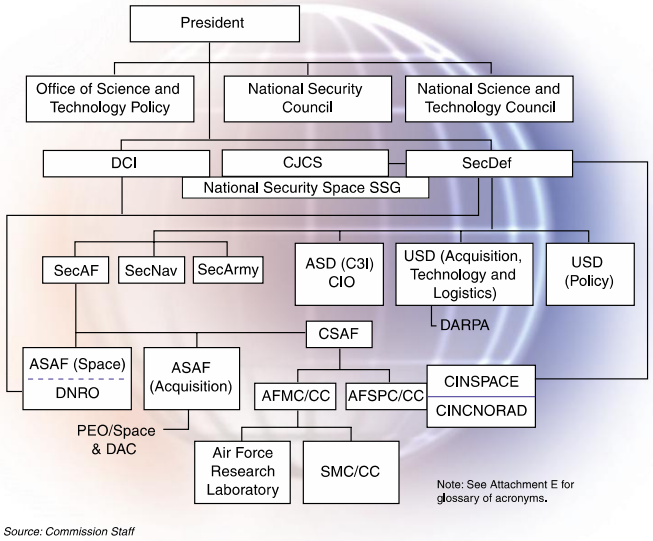

Figure2: Current Organization for Managing US National Security Space Activity

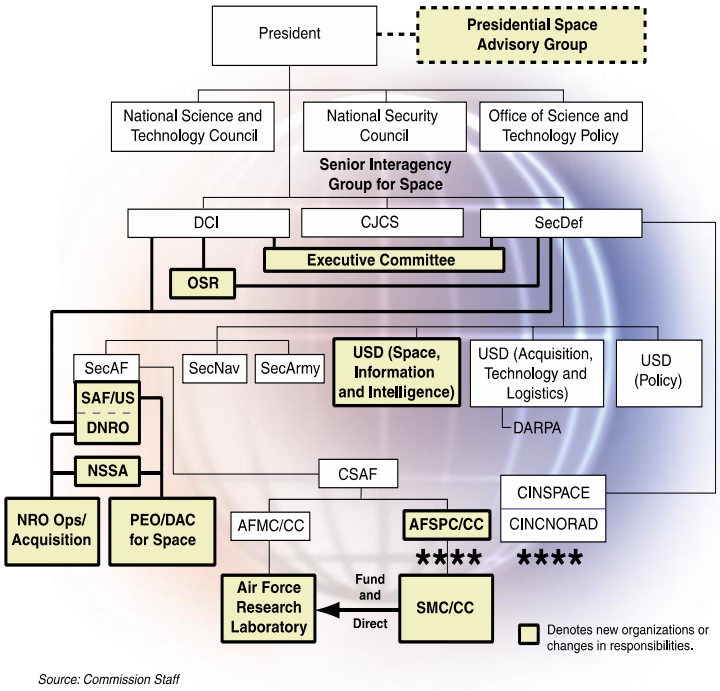

Figure 3: A New Organizational Approach for Space

Figure 3 diagrams the Commission's recommendation of how the National Security Space enterprise be organized. Some of these recommendations are discussed in more detail in the following paragraphs.

4. SECDEF/DCI (now DNI) Relationship – "The Secretary of Defense and the Director of Central Intelligence (now the Director of National Intelligence) should meet regularly to address national security space policy, objectives and issues." This has been an evolving relationship fraught with strong personalities, opposing agendas, secrecy and bureaucratic hurdles. Ten years later a benchmark document emerged when they both signed the 2011 National Security Space Strategy. Secretary of Defense Robert Gates and Director of National Intelligence James Clapper outlined in this document the Strategic Space Environment and Objectives; identifying five key strategic approaches (peaceful use of space, improved capabilities, partnering, deterring aggression, defeating attacks / operating in a degraded environment).

5. Under Secretary of Defense for Space, Intelligence and Information – "An Under Secretary of Defense for Space, Intelligence and Information should be established." See Figure 3 in the middle of the chart. This position would be within the Secretary of Defense sphere, at the Under Secretary level, and not answerable to the Secretary of the Air Force.

6. Commander in Chief of the U.S. Space Command and NORAD and Commander, Air Force Space Command

a.) "The Secretary of the Air Force should assign responsibility for the command of Air Force Space Command to a four-star officer other than CINCSPACE/ CINCNORAD." ('CINC' or 'Commander in Chief' is an out-of-

date term. The new, correct title is Combatant Commander of a Combatant Command (COCOM). 'CINCSPACE' referred to 'Commander in Chief of U.S. Space Command'. U.S. Space Command, as a COCOM organization was dissolved in 2002 and its responsibilities were folded under STRATCOM (Strategic Command) and AFSPC (Air Force Space Command).

b.) "The Secretary of Defense should end the practice of assigning only Air Force flight-rated officers to the position of CINCSPACE and CINCNORAD to ensure that an officer from any Service with an understanding of combat and space could be assigned to this position."

7. Military Services

a.) "The Air Force should realign headquarters and field commands to more effectively organize, train and equip for prompt and sustained space operations. Assign Air Force Space Command (AFSPC) responsibility for providing the resources to execute space research, development, acquisition and operations, under the command of a four-star general. The Army and Navy would still establish requirements and develop and deploy space systems unique to each Service."

b.) "Amend Title 10 U.S.C. to assign the Air Force responsibility to organize, train and equip for prompt and sustained offensive and defensive air and space operations. In addition, the Secretary of Defense should designate the Air Force as Executive Agent for Space within the Department of Defense." Title 10 of the United States Code (U.S.C.) is the document which authorizes military forces and outlines their responsibilities. This recommendation is further

discussed later in the section on Department of Defense Directives (DoDD), specifically DoDD 5101.02, DoD Executive Agent (EA) for Space, dated January 25, 2013.

8. Aligning Air Force and NRO Space Programs – "Assign the Under Secretary of the Air force as the Director of the National Reconnaissance Office (DNRO). Designate the Under Secretary as the Air Force Acquisition Executive for Space." This is depicted in Figure 3 as a realignment from the Assistant Secretary of the Air Force (ASAF) to the Under Secretary of the Air Force and dual-hatted as the DNRO. This is discussed further in the SECDEF Implementation Guidance section.

9. Innovative Research and Development – SECDEF and DCI (now DNI) should direct the creation of a research, development and demonstration organization to focus on this requirement.

10. Budgeting for Space – "[E]stablish a Major Force Program (MFP) for Space." This MFP is an accounting tool to assist in the tracking of space related funding. MFP 12 was created in 2008 by Congressional direction and is managed by the Defense Department.

The Commission's Five Conclusions

The Commission identified "five matters of key importance for senior leaders of the U.S. Government". Essentially, these five matters of key importance are, in effect, their five Conclusions. They are as stated below:

1. Presidential Leadership – "the rapid pace at which this dependence [on space] is increasing and the vulnerabilities it creates, all demand that U.S. national security space interests be recognized as a top national security priority" "Only Presidential

leadership can ensure the cooperation needed from all space sectors – commercial, civil, defense and intelligence".

2. The U.S. Government, especially DoD and the IC needs to restructure. "[A] number of disparate space activities should promptly be merged, chains of command adjusted, lines of communication opened and policies modified to achieve greater responsibility and accountability." Military space forces are better organized under STRATCOM (JFCC-Space) and achieve a measure of "jointness", but each service still maintains their own space forces.

3. The SECDEF and the DCI (now DNI) need to agree on space priorities and cooperate to make them happen. "They must work closely and effectively together, in partnership, both to set and maintain the course for national security space programs and to resolve the differences that arise between their respective bureaucracies." Finally formalized, in writing if not in practice, was the 2011 National Security Space Strategy signed by Secretary of Defense Robert Gates and Director of National Intelligence James Clapper. This strategy outlined the Strategic Environment and Objectives. It identified five key strategic approaches (peaceful use of space, improved capabilities, partnering, deterring aggression, defeating attacks and operating in a degraded environment).

4. Develop superior space capabilities. Space will see conflict as has every other medium. "[T]he U.S. must develop the means both to deter and to defend against hostile acts in and from space."

5. Invest more in science and technology to include facilities and people. "The U.S. Government needs to play an active, deliberate role in expanding and deepening the

pool of military and civilian talent in science, engineering and systems operations that the nation will need."

Implementation Guidance

The Chairman of the Commission to Assess United States National Security Space Management and Organization, Donald Rumsfeld, removed himself as the chairman shortly before the Commission released its Report due to the fact that President George W. Bush had selected him as his Secretary of Defense (SECDEF). Nine months later on 18 October 2001 the SECDEF issued his Implementation Guidance. Secretary Rumsfeld stated that he "agreed with the Commission's conclusion that a new and comprehensive approach to national security space management and organization is needed to promote and protect the nation's interests in space." (SECDEF Memo dtd 18 October 2001) The Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (ATL)) was tasked with ensuring the implementation of his guidance and reporting back to the SECDEF periodically. The eight points of his Guidance was directed to specific Secretaries, Under Secretaries, the Chairman of the Joint Chiefs, Agencies, or Services under his control to implement his directions. This information may seem a bit redundant, but it is worth examining in detail. Outlined is the SECDEF Implementation Guidance:

1. The Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (ATL)) was directed to complete four sub-directives:

    a. Issue a policy memorandum delegating Milestone Decision Authority to the Secretary of the Air Force (SECAF), who may further redelegate to the

Under Secretary of the Air Force (USecAF) for space Major Defense Acquisition Programs.

b. Make the National Security Space Architect (NSSA) military positions Joint Duty Assignments. The intent here seems to be to make this office more "joint" and spanning across each of the services in order to provide a more inclusive view of the space domain throughout the Defense Department and the Intelligence Community.

c. Direct the Under Secretary of the Air Force (USecAF) and the Director of the National Reconnaissance Office (DNRO) to conduct a comprehensive assessment, in coordination with other Military Services and other U.S. Government agencies, of the technology required for access to and operations in space. The USecAF/DNRO should also direct the Director of the Defense Advanced Research Projects Agency (DARPA) to begin research and development into those technologies. Of note here, and to be discussed more later, is that the USecAF/DNRO position was to have been a dual-hatted position in order to bridge the divide between the Air Force and the NRO thus reducing redundancies and creating efficiencies for space programs. Although there had been six instances of this dual-hatted "ness" between the Air Force and the NRO before this time period, the only one afterwards was Peter B. Teets. Soon thereafter the position split again when it was discovered that the respective agencies' mission sets and priorities were quite different and unique.

d. Have the USecAF and the Director, Ballistic Missile Defense Office (BMDO) prepare a memorandum defining their authorities and relationship with

each other with regards to space and space-related systems currently under the management of the BMDO. This agency has since become the Missile Defense Agency (MDA).

2. The Under Secretary of Defense for Personnel and Readiness (USD (P&R)) was directed to complete two sub-directives:

a. Ensure effective sourcing of a four-star billet for the Commander of Air Force Space Command (AFSPC).

b. Prepare a memorandum for the President to approve the SECDEF's appointment of the USecAF as the DNRO.

3. The Under Secretary of Defense for Policy (USD (P)) was directed to complete six sub-directives:

a. "[U]pdate of Department of Defense Directive (DoDD) 5100.1, 'Responsibilities and Functions of the DoD Components' … "to assign the [U.S.] Air Force [the] responsibility to organize, train, and equip for prompt and sustained offensive and defensive air and space operations and clarify the other Service's unique space responsibilities and functions."

b. Prepare a DoD Directive to "designate the Department of the Air Force as the Executive Agent for Space… with Department-wide responsibility for planning, programming, and acquisition of space systems." DoD initially issued DoDD 5101.01, DoD Executive Agent (EA), dated 3 September 2002 to designate the duties and responsibilities of an EA. Later, the Department issued DoDD 5101.02, DoD Executive Agent for Space, dated 3 June 2003. This Directive was recently updated 25 January 2013 under the same title. The latter

document specified the duties and responsibilities of the Defense Space Council (DSC) and the SECAF / USecAF responsibilities as the EA for Space.

c. Prepare a memorandum of understanding between the SECDEF and the DCI to "realign the NSSA [National Security Space Architect] under the USecAF-DNRO". This was seen as a way to possibly streamline the space enterprise and designate one person as the responsible entity. However, this position ceased to exist in 2004. DoD then established the National Security Space Office (NSSO) which combined the offices of the NSSA and the National Security Space Integration (NSSI) office. However, this office was disestablished in 2010. This duties and responsibilities of this office now reside as a joint office under the DoD Executive Agent (EA) for Space. LtGen Ellen Pawlikowski is the current Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition, and is dual hatted as the military lead for the DoD EA for Space.

d. "[P]repare a policy… for establishing a mechanism to coordinate the Department's positions on space… at deliberations of the National Security Council's Policy Coordinating Committee for Space." The Defense Space Council now appears to be performing this function.

e. "Develop a plan… to propose to our North Atlantic Treaty Organization (NATO) allies the establishment of a planning group… for the purpose of consulting on the formulation of alliance policy and plans regarding space activities."

f. "Review… and… revise the Department's polices regarding the use of commercial space products, goods, and services in support of Department of Defense missions."

4. The Under Secretary of Defense Comptroller / Chief Financial Officer was directed to complete three sub-directives:

a. "Establish… a 'virtual' space program, budget, and accounting mechanism… to increase visibility into the resources allocated for space activities." A virtual Major Force Program (MFP) for Space was established and it is still in use to this day. The virtual MFP assists in the tracking of space related spending by the DoD and IC.

b. "Promulgate planning, programming, and budgeting guidance documents… for the DoD Space Program."

c. Direct the "USecAF-DNRO to submit… an annual National Security Space Program Assessment to the Senior Executive Committee (SEC)." This SEC was "comprised of the SecDef, the DepSecDef, the USD (AT&L) and the Service Secretaries." There was an additional report that Secretary Rumsfeld directed be submitted to himself and the DCI, or the "Executive Committee".

5. The CJCS (Chairman of the Joint Chiefs of Staff) was directed to "promulgate guidance, in coordination with the Commander in Chief of U.S. Joint Forces Command (CINCJFCOM) and CINCSPACE, directing CINCJFCOM to establish a Space applications Experimentation Cell at JFCOM."

6. The Secretaries of the Military Services were directed to complete these three sub-directives:

a. "[Develop and maintain]… a cadre of space-qualified professionals comprised of military and civilian personnel in sufficient quantities to represent their Military Department's and DoD agency's best interests in space requirements, acquisition, and operations."

b. "[A]ssure space education, including Professional Military Education (PME), at all levels to ensure the cadre of space-qualified professionals… have a direct understanding of space activities and how space capabilities and applications are integrated into military operations… [especially] combat operations". The military has improved in education and training of space professionals. Most of the services send students to the National Security Space Institute (NSSI) in Colorado Springs, CO for junior, middle and senior levels training courses.

c. "Maintain a sufficient cadre of space-qualified professionals… within each of their Military Departments to assure that each Service retains the ability to develop, plan, program, and acquire space systems uniquely required by individual Service missions." Through personnel management systems, each service is able to maintain an adequate number of space professionals. However, they are often not promoted at the same frequency as other specialties or branches.

7. The Secretary of the Air Force was directed to complete the following nine sub-directives:

a. "Assign responsibility for the Command of Air Force Space Command (AFSPC) to a four-star officer other than CINCSPACE and CINCNORAD." The

caution here is to NOT dual-hat this position. General John E. Hyten is the current AFSPC Commander. He is responsible for "organizing, equipping, train and maintaining mission-ready space and cyberforces." However, only USAF space forces directly; he is not responsible for those same duties for the US Army or Navy. And, although he is a four-star General officer, he is not a COCOM commander. He does exercise some control over the joint space professionals assigned to JFCC-Space (14th Air Force) and Patrick Air Force Base, FL (45th Space Wing) since those organizations are subordinate units under his command.

b. "Realign headquarters and field commands… to more effectively organize, train and equip for prompt and sustained offensive and defensive space operations." This realignment of units dealt specifically with reassigning the Space and Missile Systems Center (SMC) from Air Force Materiel Command (AFMC) to Air Force Space Command (AFSPC), assigning the Program Executive Officer (PEO) for Space directly to the Under Secretary of the Air Force and making that position dual-hatted as the SMC Commander. Additional implementation directions under this section involved "[d]isestablish[ing] the position of Assistant Secretary of the Air Force for Space once a USecAF has been confirmed" and giving the AFSPC Commander the ability to "program funds and direct research and development within the Air Force laboratory system."

c. "Assign the Commander of AFSPC appropriate responsibility within the Department of the Air Force for managing the space career field."

d. "Prepare and present… a space career management plan… [which] will address space career management, accession, education and training requirements, and investments needed for advanced technical degrees." This plan was to include "career path advancement… [which included] research, development, acquisition, and operations… [in order to give a] greater depth and breadth of experience in the space career field."

e. "Assign the USecAF as the Air Force Acquisition Executive for Space". This was designed to give the Air Force as the EA for Space a better grasp of fiscal expenditures (and the ability to allocate or not) which were occurring in the DoD under the guise of "space".

8. The USecAF-DNRO was directed to "develop a process to align Air Force and NRO programs and permit both organizations to use each other's 'best practices' for space research, development, acquisition, and operations." As stated earlier, this dual-hatting of the USecAF-DNRO had occurred six times in the last few decades. However, Peter B. Teets was the only person to hold these two positions after the enactment of this implementation guidance. It was soon discovered that "one person doing both jobs was overwhelming to the detriment of both the Air Force and the NRO… [and as] a result, in 2005 the positions were separated" as described by General M. Howell Estes, III in his High Frontier article. (High Frontier, 2011). The Commission sought to merge some of the best practices of both organizations in combining "White and Black" Space efforts. Although they do serve some of the same customers, meshing the two space programs did not, in all ways, provide the best solution for both organizations.

Some of the Commission's Recommendations and Conclusions, along with Secretary Rumsfeld's Implementing Guidance, have stood the test of time and are still in effect thirteen years later. There is still the "virtual" Major Force Program (MFP) for Space which assists in tracking budgetary matters and the United States Air Force is still the DoD Executive Agent for Space. The Commander for Air Force Space Command, currently General John E. Hyten, is still a four-star billet and it is no longer double or triple hatted as the NORAD or USSPACECOM Commander. This prudent decision allows the AFSPC Commander to devote more of his time to purely space related matters. The USAF has mostly ended the practice of assigning flight-rated officers to command AFSPC since 2002. All, with the exception of General Kevin P. Chilton (in command from 2006 – 2007), have been ICBM and Space professionals.

There does appear to be better coordination and collaboration between the SECDEF and the DNI as evidenced by both signing the 2011 National Security Space Strategy. Deputy Secretary of Defense Ashton Carter did publish a memorandum on 22 November 2011 defining in more detail the operation of the Defense Space Council (DSC). He stated that the DSC "shall serve as the principle advisory forum to inform, coordinate, and resolve all DoD space issues." This watershed document will garner more detailed examination later. Subjectively, there have been better Presidential National Space Policy's issued of late, but they are not specific enough and fail to provide clear direction.

On the negative side, there were other recommendations, conclusions and guidance which are no longer in effect. Notable among those is that the USecAF and the DRNO position is no longer a dual-hatted position. This was a critical recommendation

as it was intended to bridge the gap between DoD and IC space programs. Not having this central point of contact for these two space programs "continues to feed a dysfunctional NSS." (Estes, High Frontier, 2011). Also missing are the commands of USSPACECOM and JFCOM. These commands were specifically mentioned in Secretary Rumsfeld's Implementing Guidance. When the new Unified Command Plan was reorganized in 2002 and 2011, these commands were disestablished and their duties / responsibilities absorbed by other COCOMs, namely STRATCOM and NORTHCOM. These COCOM consolidations were mostly beneficial and have assisted DoD in streamlining its force structure, mission alignments and fiscal priorities. More discussion will follow near the end of this research paper of a necessity to re-establish / reorganize USSPACECOM as a sub-unified command under STRATCOM in much the same manner that USCYBERCOM is currently structured. This will add the needed emphasis and structure to maintaining a high degree of National Security Space.

CHAPTER III

METHODOLOGY AND LITERATURE REVIEW

I reviewed many government documents, reports, memoranda, military professional journals, online articles, books and even conducted an interview with Mr. Richard McKinney, Deputy Under Secretary of the Air Force for Space and Director, Executive Agent for Space Staff, while researching material for this paper. All were extremely useful and provided much background and a variety of viewpoints about this very important aspect of national security.

Justification for Research

There has been a significant amount of research and study conducted about the Space Commission Report, its recommendations, conclusions and implementing guidance. The overall management and organization of U.S. National Security Space is not where it needs to be and there is still much that needs to be accomplished.

I initially attempted to research the national security space of other nations, but decided to focus solely on United States National Security Space. I had originally postulated that it might be good to compare how another country conducts its national security space to see if there are lessons learned which may be useful to the U.S. As I analyzed the Space Commission's Report I determined that this is a problem set that is unique to the U.S. Other nations manage their space enterprises differently; many relying on the commercial or civil sectors of space entirely. Additionally, nations like Russia and

China, who are engaged in military space programs are not transparent with their space programs, especially as they influence national security space.

Additionally, the manner in which our nation governs itself is different from other nations. Our governmental processes are subject to a measure of scrutiny. Comparing our national security space management and organizational procedures with those of Russia or China; our closest near peer national security space competitors, is not realistic. Their government agencies and procedures are not subject to the same level of public oversight.

DoD Joint Publication 3-14, Space Operations, states the following when analyzing how other nations conduct space operations. "For most other nations, the civilian and commercial segments dominate space operations. Therefore, civilian space agencies have often taken the leadership role for space. Agencies such as the European Space Agency, the Japan Aerospace Exploration Agency, France's Centre National d'Estudes Spatiales, and the Indian Space Research Organization often issue national policies and strategies in which military space operations may not be addressed. There are allied space operations centers, such as the European Union Satellite Centre, the British National Space Centre, and several others, but they are not typically part of military forces. However, there may be agreements and procedures in place for them to support military operations." (JP 3-14, pg. IV-18) As evidenced above, many other nations do not incorporate a military aspect in their space programs and are mainly interested in the scientific / Earth monitoring applications. These nations tend to rely on commercial space-based assets or dual use spacecraft.

A History of United States National Security Space Management and Organization

I have already detailed in the previous sections that my primary source document was the Commission's Report itself. Another important document for contextual and historical purposes was "A History of United States National Security Space Management and Organization" by Joshua Boehm, Stanley Chan and Mel Sakazaki of System Planning Corporation and Craig Baker from the Space Commission Staff. This document was produced for the Commission's benefit and proved invaluable as it traced military space history from the end of World War II to the present (the year 2000 at that point). It was of great assistance in understanding the evolution of military and intelligence space programs and how we arrived at the current management and organization structure. In Section II it discussed the RAND Corporation's space feasibility study conducted on behalf of the U.S. Army Air Forces in 1946 and then how each service had initiated their own space programs by the early 1950's. As "Congress passed the National Security Act of 1947, the DoD assigned responsibility for all space-related activities to the Research and Development Board's Committee on Guided Missiles, an entity jointly run by the U.S. Army and the U.S. Navy." The National Security Act of 1947 was also the act which created the U.S. Air Force, the CIA, the Secretary of Defense, and the Joint Chiefs of Staff. This paper then sequentially walked through the U.S. Air Force and the CIA beginning the WS-119L and then the WS-117L satellite reconnaissance programs. Also outlined in those early days of military and intelligence space programs it notes the U.S. Army and U.S. Navy programs, the impact of the 1957 International Geophysical Year (IGY), and the launch of Sputnik.

This document then shows the evolution of specific agencies and directorates which were created from the late 1950's through the 1980's to manage this new medium; namely the Advanced Research Projects Agency (ARPA), the National Aeronautics and Space Administration (NASA), the Office of the Director of Defense Research and Engineering (DDR&E), and the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD (C3I)).

The author traces the history of each military services' space programs; how the Army and the Navy developed very specific applications to meet their space mission sets and how the Air Force, teaming with the National Reconnaissance Office (NRO), became the primary owner of military space programs.

In the next section the author discusses the Intelligence Community (IC) and their involvement in space systems. He highlights the Central Intelligence Agency (CIA), National Reconnaissance Office (NRO), National Security Agency (NSA), Defense Intelligence Agency (DIA), National Imagery and Mapping Agency (NIMA), and Defense Information Systems Agency (DISA).

The last section outlines the various space systems applications that have become essential to our national security over the past years. The systems included the Defense Satellite Communications System (DSCS), Defense Meteorological Satellite Program (DMSP), Defense Support Program (DSP), and Global Positioning System (GPS). Again, this document was invaluable; providing structure to keep these historical events in proper contextual and chronological format.

Leadership, Management and Organization for National Security Space

This 2008 assessment was a companion guide to 2001 Space Commission Report and was conducted by the Institute of Defense Analyses. Its subtitle is a "Report to Congress of the Independent Assessment Panel on the Organization and Management of National Security Space". The committee was smaller, but its members were as equally august as the Space Commission. It was chaired by Mr A. Thomas Young and its members were Lieutenant General Edward Anderson, USA (Ret); Vice Admiral Lyle Bien, USN (Ret); General Ronald R. Fogleman, USAF (Ret); Mr. Keith Hall; General Lester Lyles, USAF (Ret); and Dr. Hans Mark. Similar to the 2001 Space Commission its members brought vast knowledge and experience from various senior level positions at NASA, NRO, OSD, DoD military services, and commercial industry. Comparing the similarities and differences between the reports is quite interesting. They also examined the 2001 Space Commission Report; noting which recommendations were enacted and which were not. This panel had four major recommendations:

1. The President should and lead the execution of a National Space Strategy
2. Establish a National Security Space Authority (NSSA)
3. Create a National Security Space Organization (NSSO)
4. Change personnel management policies for space acquisition professionals in order to retain technically competent and experienced professionals.

This latter report has a more concise recommendations format and in conclusion it states that a "major top-to-bottom overhaul is needed to restore the vitality of National Security Space, and regain and sustain the competitive advantages afforded the United States by our space programs". (IDA, pg ES-6). These recommendations, with the

associated figures, will be reviewed more in detail in the last section of this research paper as a "way ahead" to restructure National Security Space.

Professional Journals

Other sources of great assistance were past editions of *Aerospace Power Journal* and *High Frontier*; along with current issues of *Air and Space Power Journal* and the *National Security Space Institute (NSSI) Space Weekly*. *High Frontier* journal, no longer in print, was billed as "The Journal for Space and Cyber Professionals" and was published by Air Force Space Command. Its last edition in 2011 was actually dedicated to an in depth look at the 2001 Space Commission Report and provided highly useful insight. Several articles from this edition will be discussed later. Currently, one of the most purely space professional journal is the NSSI Space Weekly, "a compilation of published items and commentary concerning significant defense-related issues for space professionals." It is distributed by The Air University and compiled by the NSSI Resource Center. I obtained many great viewpoints from this publication also.

Air and Space Power Journal

Many noted professionals have commented over the years about the importance of space and where it belongs in the discussion of national security in various issues of *Air and Space Power Journal (ASPJ)*. This US Air Force journal is dedicated to mainly air, space and cyber professionals and has evolved over the years since its inception in 1947. It has also been known by many different titles; *Air University Quarterly Review*, *Air University Review*, *Airpower Journal*, *Aerospace Power Journal* and now by its current title. Its byline is "To Fly, Fight and Win… In Air, Space and Cyberspace". It addresses a number of topics, to include Space, that are important to the military community as a

whole and provides great insight from many respected professionals. Specifically in the 2006 edition of *Air and Space Power Journal* (ASPJ) there were a number of interesting articles. Of note is the one by Lieutenant Colonel Mark E. Harter, USAF, found in the Summer 2006 ASPJ; in which he lists some Space Power considerations. His article was titled *Ten Propositions Regarding Space Power – The Dawn of a Space Force*. He advanced that:

1. Space is the ultimate high ground.
2. Space is a distinct medium; space forces require space-focused theory, doctrine, and policy.
3. Space power is a force multiplier for every combatant commander and military service.
4. Space forces can support all levels of war simultaneously.
5. Space power leverages a nation's economic and military centers of gravity.
6. Space superiority starts with assured access to space.
7. Controlling space requires eyes, ears, shields, and swords.
8. Space forces require centralized command and control led by space professionals.
9. Space power is a function of a nation's total space capability (space unity of effort).
10. National space power reaches its full potential when a nation commits to a separate, independent space force

Lt Col Harter analyzes each of these ten propositions in detail and then concludes that a separate space force is not a question of if, but when. His arguments are sound; citing that space is a "unique, distinct, war-fighting medium… [and that] the true potential of a

nation's military space power will come to fruition only when a separate space force is created." (Harter, ASPJ 2006) I agree wholeheartedly with his assessment.

High Frontier Journal

The last edition of *High Frontier* was published in August 2011. Fittingly, it devoted the entire issue to a review of the 2001 Space Commission Report. Many of the original Commission members submitted articles reviewing what had been recommended and what still needed to be done. General William L. Shelton, AFSPC Commander, introduced the edition. Honorable Donald Rumsfeld, Honorable Stephen Cambone, General Howell M. Estes, Mr. Richard W. McKinney, and Brig Gen J. Kevin McLaughlin all provided valuable insight as either Commission members or on the supporting staff; and now with a decade of reflection were able to offer unique perspectives.

Mr. Rumsfeld and Mr. Cambone co-authored the first article, *Enduring Issues*, in which they re-iterated some of the Commission's concerns; namely Vulnerability, Presidential Leadership and a Space Service. They state that the possibility of a "Space Pearl Harbor" still exists and that the recent events of ASAT tests and cyber attacks highlight how vulnerable some of our space assets are. Another interesting reflection in this article is the explanation of why the USECAF and the DNRO was not dual-hatted. Reorganization efforts within the USAF and the creation of the DNI negated some of the attractiveness of this recommendation.

General Estes' article, *The Space Commission: 10 Years Later – Still a Work in Progress*, concentrated on three of the Commission's recommendations: Military Services; Aligning USAF and NRO Space Programs; and a Separate Commander in

Chief of USSPACECOM and NORAD; from the Commander of AFSPC. Under the Military Services Recommendation, he reminisces that the topic of a separate Space Force was "hotly debated" and opines that the Commission got it correct in leaving Air Force Space within the USAF. He also believes that the realignment of Space and Missile Systems Center (SMC) under AFSPC was the right decision; assisting in the streamlining and accountability of the space acquisition process. Of the last recommendation that General Estes examined, Separating CINCSPACE and the Commander of AFSPC, he concludes that making the AFSPC Commander a four-star billet to focus solely on space related matters was definitely the right decision. He cites his personal example of being overtasked as the triple-hatted Commander of AFSPC, NORAD, and USSPACECOM. However, General Estes believes that the disestablishment of USSPACOM as a COCOM was absolutely the wrong decision. He estimates that this is too much for the Commander of STRATCOM to effectively handle. Of note, this sentiment was echoed by Mr. Richard McKinney, Deputy Under Secretary of the Air Force for Space and Director, Executive Agent for Space Staff, during my interview with him.

Brigadier General J. Kevin McLaughling, USAF, was a staff member for the 2001 Space Commission and authored the article, *The Space Commission: 10 Years Later, But Not Quite 10 Years Closer*. Brig Gen McLaughlin agrees with the two previous articles that the "commission's recommendations have been implemented in a way that moved the entire program forward… [h]owever, we have much more work to do to ensure the US NSS program remains not only preeminent, but highly relevant over the long term". (McLaughlin, High Frontier, 2011). I concur with his assessment that the Space

Commission "got most of it right" but that since the recommendations were complementary and not "taken as a whole [that this has] undermined the overall effectiveness of those recommendations that were implemented." (McLaughlin, High Frontier, 2011). He cites that since the key position of Under Secretary of Defense for Space, Intelligence and Information (USD/SII) was not created and it left the Space enterprise under-represented. There is no single senior official within "OSD with both the clear responsibility, focused staff, and authority to work with the Air Force to assist in the implementation of recommendations in a manner consistent with the spirit and intent of the commission's report." (McLaughlin, High Frontier, 2011). There is the EA for Space office and staff, but this is at the SECAF level and not OSD. Brig Gen McLaughlin also recommends additional authorities be given to STRATCOM, especially space acquisition related, and more Joint force structure reorganization.

Another important article in this edition is *Getting There From Here: Realizing the Space Commission's Vision 10 Years Later*, by authors Colonel C. David Arnold and Dr. Peter L. Hays. Their two main concerns centered on Improving Strategic-Level NSS Management and Organization and also on Improving NSS Personnel Structure. Col Arnold and Dr. Hays stressed that there is a pressing need for senior level military space personnel continuity and a clear, concise and persistent NSS vision. Only then will the national security space enterprise be able to achieve the long term goals which are required to ensure that the US maintains its space superiority. They assert that once we have continuous, competent space leadership with a precise, consistent vision statement, then the organizational and management changes will remain in place and achieve the recommended goals. "Since the Space Commission, turmoil in the NSS enterprise has

been compounded because so many NSS management and organizational changes have been implemented, undone, or modified in such a short span of time, the effects of previous changes were not always clear before the next ones were initiated. Since it can easily be 30 years or more from the time a new space system is planned until the last satellites are decommissioned, the only approaches to improving space management and organization that make sense require patience, transparency, consistency, and accountability." (Arnold and Hays, High Frontier, Aug 2011)

The Torchbearer Report

The US Air Force is not the only military service with an interest in space. The Navy and the Army have valid requirements to conduct space operations. The US Army has nearly 300 space operations officers on Active Duty and another nearly 200 in the Reserve Component. Admittedly, the US Army focuses more of its space priorities on the operational and tactical levels as opposed to the strategic. The Army concentrates on providing space capabilities down to the land warfighter requirements. This interesting article gives some unique perspectives to important priorities and direction for Army Space Operations and Policy. These remarks were given by General Gordon R. Sullivan, (USA - Ret) in the article *Army Space Capabilities: Enabling the Force of Decisive Action* found in the Association of the United States Army (AUSA) Torchbearer Issue from May 2012.

Gen Sullivan notes that the 2009 Army Space Policy "follows implemented DoD space policies and procedures, reestablishes objectives for Army space and sustains the Army Space Council—an advisory committee that provides advice on space issues to the

Vice Chief of Staff." This statement is interesting since it shows how the Army outlines its own policies and procedures, albeit in line with DoD and vets them through the Army Space Council before submitting to the Vice Chief of Staff. That would be the Army Vice Chief (currently General Daniel B. Allyn) and a position which Gen Sullivan had occupied from 1990- - 1991. This process would be well in advance of sending these Army recommendations to the Defense Space Council and the EA for Space. The 2009 *Army Space Policy* outlined the following four space-related objectives:

1. Maximize the effectiveness of current space capabilities in support of operational and tactical land warfighting needs

2. Influence the design, development, acquisition and concepts of operation of future space systems that enable and enhance current and future land forces

3. Advance the development and effective use of responsive, timely and assured joint interoperable space capabilities

4. Seamlessly integrate relevant space capabilities into the operating force.

The article continues with a description of the 2011 Army Strategic Space Plan and shows how it was developed to support the focus of the 2010 National Space Policy and the 2011 National Security Space Strategy. "The essence of the [Army] space strategy is to assure access to resilient and relevant space capabilities that aid Army forces in unified land operations." The Army Space Strategy joins with the national and DoD space policy and strategy in order to "inform the planning, programming, budgeting and execution process and to address the DoD Directive 5101.2 requirement directing heads of DoD components to submit space requirements to the DoD executive agent for space." (Sullivan, Torchbearer Report, 2012).

Joint Publications

The Department of Defense, and each of its services (Army, Navy, Air Force and Marines), publishes an enormous quantity of regulations, policies, procedures, manuals, instructions, and directives. From a review of DoD Joint Publications, it is clear that the space sector is important to military operations. Military personnel are tasked with the protection of commercial SATCOM, GPS and many other systems as a result.

The military services (Army, Navy, Air Force and Marines) currently conduct operations in the space environment as noted in their joint publications. As an example, Joint Publication 3-14, Space Operations, updated on 29 May 2013, states that "[This] Joint doctrine established in this publication applies to the joint staff, commanders of combatant commands, subunified commands, joint task forces, subordinate components of these commands, and the Services. The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise." (JP 3-14, pg. i)

In Chapter III of JP 3-14, Command and Control of Space Forces, it states that the "CDRUSSTRATCOM (Commander of United States Strategic Command) advocates, plans, and executes military space operations and has the responsibility to prioritize, de-conflict, integrate, and synchronize military space operations for current and planned joint operations… [and he administers] the United Command Plan (UCP)-assigned role to conduct space operations. CDRUSSTRATCOM has designated the CDR, Joint Functional Component Command for Space (JFCC SPACE) to manage day-to-day space operations." (JP 3-14, pg. III-1) The Commander of the 14th Air Force is dual-hatted as

the Commander of JFCC Space. Lieutenant General John W. Raymond is the current 14th Air Force Commander.

As noted previously, the Department of Defense now recognizes five mediums of operations; land, sea, air, space and cyber. As evidence that space is defined as a separate medium, one can look to Joint Publication 3-14 which recognizes the unique environment in which space operates. As defined in DoD Joint Publication 3-14, Space Operations, "Space is a unique environment in which to conduct military operations. Commanders in all disciplines should have a basic awareness of the fundamental advantages and disadvantages offered by space operations in order to effectively employ space capabilities".

JP 3-14 continues as it defines the characteristics of Space. It shows to the layman that Space has no geographical boundaries as the other mediums of land, sea and air. It cites that "[i]nternational law does not extend a nation's territorial sovereignty up to Earth orbit. Therefore, nations enjoy unimpeded satellite overflight of other nations through space." This has long been the standard of operations in Space and some historians have argued that President Eisenhower intentionally let the Soviets launch the first satellite to orbit the Earth to set this precedent. JP 3-14 continues as it advises commanders that "[o]perating from space provides line of sight (LOS) access to large areas (including remote and denied access areas), which offers advantages for communications, navigation, ISR, and meteorological and oceanographic (METOC) information." (pg. I-8).

JP 3-14 describes Orbital Mechanics and Space Weather to the military services; again directing its comments more to the average service member and not the space

professional. It shows how [s]atellite orbits must follow certain orbital parameters due to physical laws. A satellite's orbit is chosen to best satisfy a satellite's mission. These orbital parameters can sometimes be changed, but will deplete fuel, which can significantly degrade the performance or lifespan of a system". (JP 3-14, pg. I-8) With regards to Space Weather it describes the effects of solar flares, charged particles, cosmic rays, Van Allen radiation belts, and other natural phenomena and how they can "create changes that can affect communications, navigation accuracy, the performance of sensors, and cause electronic failures". (JP 3-14, pg. 1-8).

JP 3-14 confirms in Chapter IV that DoD relies heavily on commercial satellite communications. A commonly quoted statistic is that the military depends on commercial satellites for 80 percent of its communications needs. This publication notes that "[c]ommercial satellite communications are a critical part of US military operations, and planning should include protection of these services." (JP 3-14, pg. IV-17)

Chapter IV also shows how the military depends greatly on two other space applications, commercial satellite imagery and GPS, or positioning, navigation, and timing (PNT), in the military lexicon. JP 3-14 emphasizes by stating that "[s]pace-based imagery provided by commercial entities has become an important capability for civil and military operations". (JP 3-14, pg. IV-17) Since most commercial satellite imagery is unclassified, it can be easily shared with coalition or host nation countries who might not have access to more classified products. GPS, or PNT, has become ubiquitous in everyday military and civilian life. Originally designed for military applications, GPS quickly became a commercial staple and JP 3-14 notes that "space-based PNT

capabilities are, by national policy, dual military-civilian use" and each would be sorely handicapped without it (JP 3-14, pg. IV-17)

Presidential National Space Policy

Nearly every President issues a National Space Policy. It is interesting to see the importance (or lack thereof) which some Presidents put on National Space Security and its management, organization and administration. Figure 4 illustrates this perfectly. In the following section I will analyze some recent Presidential Space policies and how they have evolved over the years.

2010 National Space Policy

The National Space Policy of the United States of America was signed by President Obama on June 28, 2010. This unclassified document is quite comprehensive and addressed each sector of space (Civil, Commercial, and National Security Space). As a testament to how the importance of the space medium has evolved over the decades, the policy states that "the benefits of space [now] permeate almost every facet of our lives." It addresses Principles, Goals, Intersector Guidelines and Sector Guidelines for agencies of the USG to follow. Broad, overarching statements are made in the Principles and Goals sections. Several USG agencies, departments and individuals are addressed under the Intersector Guidelines (Office of Science, Technology and Policy; Secretary of State; Secretary of Defense; DNI; NASA; Secretary of Transportation; and Secretary of Energy). No particular entity, other than the United States Trade Representative (USTR), is addressed under the Commercial sector; no Departments of Commerce, Transportation, or Federal Trade Commission. The NASA Director, in coordination with the Secretary of Commerce, the Director of National Oceanic and Atmospheric Administration

(NOAA), Secretary of Defense, Secretary of the Air Force, and the United States Geological Survey (USGS) are specifically directed to achieve certain measures under the Civil sector. The Secretary of Defense and the Director of National Intelligence are tasked with cooperation in many areas and accomplishing the National Security Space goals. These included such topics as maintaining Space Situational Awareness (SSA); space systems survivability; deter, defend and defeat our adversaries if they interfere or attack our space systems; space-based intelligence collection; and integration of foreign and commercial space capabilities. While this latest National Space Policy is fairly comprehensive, it fails to identify one single point of contact, other than the President, who is responsible for ensuring that this policy is followed. There is no mention of the National Space Council or any other senior level mechanism for achieving the goals or guidelines in this policy. As Roger Launius and Howard McCurdy note in their book, *Spaceflight and the Myth of Presidential Leadership*, just because a president promulgates a particular policy statement doesn't mean that it will be executed without vigorous effort, focus and funding. Recent examples would include the 2004 Vision for Space Exploration and the 1989 Space Exploration Initiative.

2006 National Space Policy

This National Space Policy was signed by President George W. Bush on August 31, 2006. It superseded NSC 49/NSTC-8, National Space Policy, dated September, 14 1996 which had been signed by President Clinton. It is evident that the 2010 National Space Policy used this policy as its foundation since the sections and the language are nearly the same. There is about the same amount of specificity and assignment of responsibilities between the two documents. Again though, there is no mention of the processes,

mechanisms, or the sole individual who is responsible for ensuring accomplishment of this policy.

National Space Policies before 2002 did not, of course, have access to the 2001 Space Commission Report and are mainly referenced here for historical context to determine the degree of criticality that each President afforded to the space enterprise, specifically National Security Space. President Clinton had signed his Presidential Decision Directive or PDD, titled National Security Council (NSC) 49 / National Science and Technology Council (NSTC) 8, National Space Policy. It is more basic and not as detailed as its successors, but it is similar in format and focus. There are no significant additions or deletions to the NSS sector. Additionally, this National Space Policy does detail the guidelines for Nonproliferation, Export Controls and Technology Transfer. President G.H.W. Bush issued National Security Directive 30, National Space Policy Directive, on November 2, 1989. This document was originally classified as Secret and has been heavily redacted in the unclassified, releasable version. Again, its format and the responsibilities it assigns to the space sectors is much the same as its successors. However, President G.H.W. Bush did elevate National Space Policy actions to the National Space Council level; appointing Vice President Dan Quayle with the NSC responsibilities. There are major portions of Military Space and Intelligence Space sectors missing through redaction, but it does not appear that there were significant changes. This policy does make specific references to the Space Shuttle as it applies to the Civil and NSS sectors. President Reagan issued his Presidential Directive on National Space Policy on February 11, 1988. The format and language was again much the same, but he did emphasize that the Senior Interagency Group (SIG) Space would

continue to coordinate the development and implementation of NSS policy. Lastly, President Carter issued NSC-37, National Space Policy, on May 11, 1978. The portions of this policy which dealt with NSS were again highly redacted, but he did appoint the OSTP Director as the lead for developing the National Space Policy.

Figure 4 shows the importance that various Presidential administrations have placed on National Security Space and the National Space Policy. It is easy to identify which Presidents were focused on the space enterprise by analyzing this chart. There are many crests and troughs as administrations cycle through their terms. Another important aspect of Figure 4 is the "Historical Context – Predominant Backdrop" which runs across the top. This timeline gives some interpretation to the other factors which may have been the main focus for each respective administration. This analysis would seem to indicate that the administrations which placed the right amount of emphasis and enough senior level involvement in the space enterprise were more successful in accomplishing their goals with respect to National Space Policy. President Obama campaigned that he would reinvigorate the National Space Council during his administration, but there was no mention of it in 2010 when his National Space Policy was released and there has been no movement on this council in the intervening years. While the National Space Council level may be too much emphasis, the OSTP/NSC/OMB staff level is not enough. The "Goldilocks Zone" for Space Policy seems to be at the SIG level.

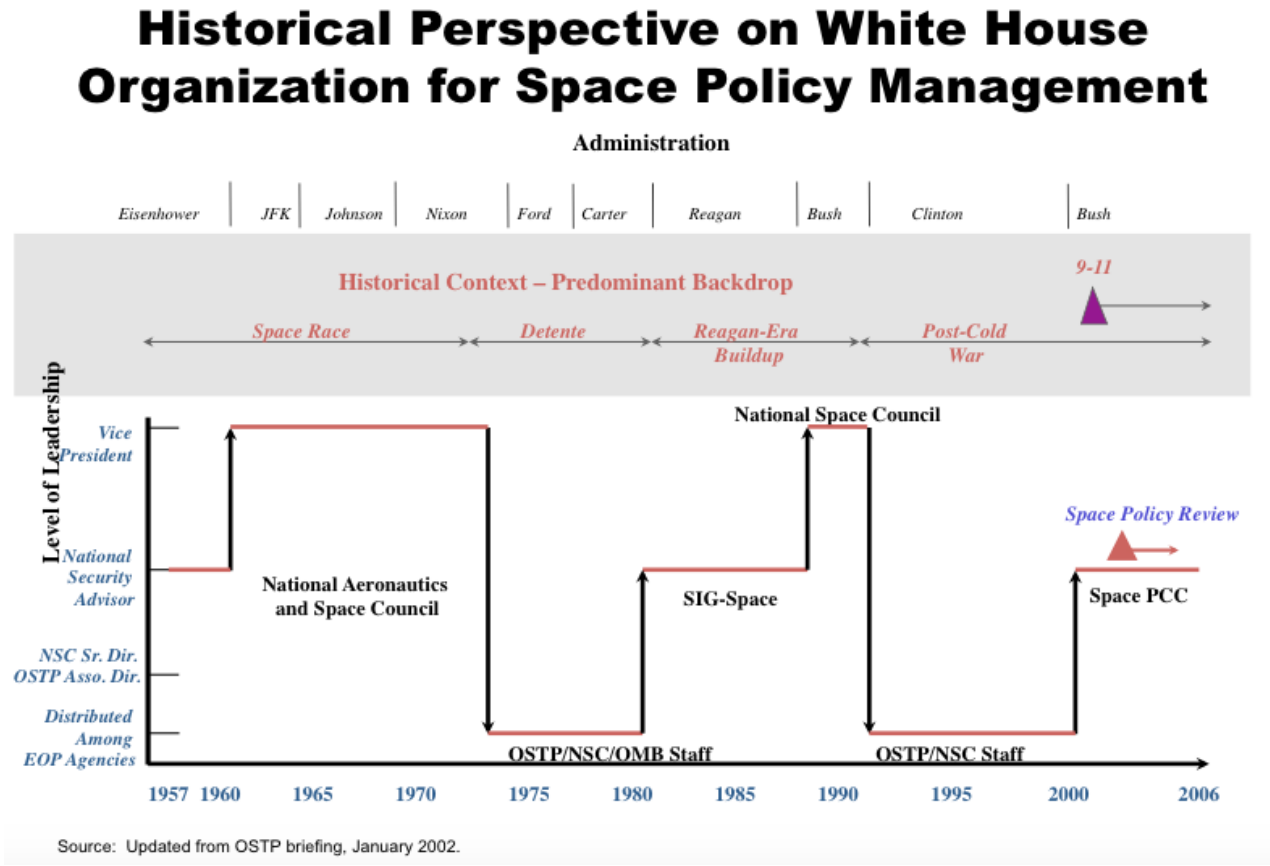

Figure 4. Historical Perspective on White House Organization for Space Policy Management
Source: Space Policy in Transition by Dr. Scott Pace

Department of Defense Directives

The DoD has sought to clarify duties and assign responsibilities through a number of Department directives over the years. Known as "DoDD" they provided very specific directions about what each of the Services were assigned to do. Below is a list of several significant directives which helped shape National Security Space within DoD.

DoDD 5160.32 was an important document in charting the path of how DoD organized and managed NSS assets. Tracing its history back to 1961, it is determined that it enabled the USAF to obtain the lion's share of military space. Furthering the NSS enterprise, it teamed up with the NRO thereby ensuring its continued preeminence. This document specifically outlined the duties and responsibilities among the services. "DoD Directive 5160.32 of 1961 severely limited the scope of U.S. Army space programs. It prohibited the U.S. Army from developing independent reconnaissance satellites, space launch, and space system operations. As a result of 5160.32, these missions were assigned to the Air Force, as was with the responsibility to meet the Army's requirements. The USAF's effort to become the lead space service was greatly aided by SecDef McNamara's decision to centralize space system development within the Air Force through Directive 5160.32. This Directive assigned the USAF responsibility for research, development, test and engineering of DoD space development programs and projects, and in turn, made the USAF the executive agent for military space development. By mid-1961, the USAF was responsible for more than 90 percent of all U.S. military space efforts." (Boehme, 2000)

This DoDD was revised in 1970 to allow the individual services "to research and develop satellite programs to meet their own specialized warfighting… to develop their

own specialized satellite systems for ocean surveillance, communication, navigation, meteorology, mapping, charting, and geodesy." (Boehm, 2000) This was a benefit to the Army and the Navy as they were eager to gain more access to the space enterprise in order to facilitate their respective requirements. The Navy had continued space systems research which eventually led to the development of the GPS system.

Currently, DoDD 5100.01, Functions of DoD and its Major Components, dated December 21, 2010 is the document that establishes the functions and responsibilities within the DoD, the Joint Staff, the Combatant Commands, the Military Services, Defense Agencies and DoD Field Activities. The earlier version had been issued on August 1, 2002.

It assigns "Common Military Service Functions" to each military service; specifically to "[d]evelop concepts, doctrine, tactics, techniques, and procedures, and organize, train, equip, and provide land, naval, air, space, and cyberspace forces… that enable joint force commanders to conduct decisive operations across the spectrum of conflict in order to achieve the desired end state." Therefore, the Army is primarily responsible for combat operations on land "and such aviation, water transport, and space and cyberspace forces as may be organic therein", and so forth with the Navy and Marine Corps (maritime) and the Air Force (air). Accordingly, it assigns primary responsibility for air and space to the Air Force and directs that it [p]rovide agile combat support to enhance the air and space campaign… [and] conduct global integrated command and control for air and space operations."

DoDD 3100.10, Space Policy, dated October 18, 2012, was signed by Deputy Secretary of Defense, Ashton B. Carter. It details within the DoD what the

responsibilities are for each Department, Military Service and COCOMs. The directive states that DoD will protect and strengthen the "safety, sustainability, stability, and security in space; maintain and enhance the national security advantages afforded by the use of space; and energize the space industrial base that supports U.S. national security." It details out the five space mission areas; space situational awareness, space support activities, force enhancement, space force application and space control. It further affirms that DoD will "serve as the launch agent for both the defense and intelligence space sectors." Enclosure 2 of this document gives specific direction to a number of DoD departments and related agencies USD (P), ASD (GSA), USD (AT&L), USD (I), DIA, NGA, NRO, NSA, and the DoD CIO. It reminds the Secretary of the Air Force that they are the DoD EA for Space and assigns this position as the Chair for the Defense Space Council. DoDD 3100.10 also details space-related responsibilities to the Commander of USSTRATCOM to include SSA, space control operations, and serving as the "focal point for space control requirements from the other Combatant Commanders… [and coordinating the] indications, warning, and response to interference with U.S. space systems or the use of space for non-peaceful purposes."

DoDD 5101.02, DoD Executive Agent (EA) for Space, dated January 25, 2013 was also signed by Deputy Secretary of Defense, Ashton B. Carter. It replaced an earlier version from 2003 and continued the recognition of the Secretary of the Air Force (SECAF) as the DoD EA for Space. This document notes that the DoD EA for Space "[p]romotes unity of effort across the DoD space enterprise as the single official with primary responsibility for achieving this outcome." Additionally, the DoD EA for Space is tasked with reviewing and assessing management of the Space Virtual MFP. Another

important facet of this document is that it details the operations of the Defense Space Council. It delineates the composition, the duties and responsibilities and its authorities. There was an earlier memorandum dated November 22, 2011, also signed by DUSD Carter, that initially defined the operations of the DSC and laid the foundational basis for its mandates. DoDD 5101.02 is a watershed document provides clear direction within DoD of how the space enterprise will operate.

2002 Unified Command Plan Reorganization

The is Unified Command Plan (UCP) reviewed periodically and there have been many changes over the decades. But in June 2002 the DoD decided on a major reorganization effort for the Combatant Commands (COCOM). In the aftermath of 9/11, more importance was place on homeland security and NORTHCOM was created. Subsequently JFCOM and USSPACECOM were disestablished and their responsibilities merged in with NORTHCOM and STRATCOM. STRATCOM was given ever increasing global mission. This tumultuous time was best described in a *History of the Unified Command Plan, 1946-2012*, by the Joint History Office of the Chairman of the Joint Chiefs of Staff. "Although the revised UCP 2002 and its accompanying changes were the most dramatic modifications to the UCP since its inception in 1946, there was still unfinished business." (*History of the UCP,* 2013). Subsequent changes in 2004, 2006, 2008, and 2011 have yielded the organization structure we have today.

The current UCP has nine COCOMs, six regional, as detailed in Figure 5, and three functional. Figure 5 displays how the COCOMs are aligned and their Areas of Responsibility (AOR). STRATCOM, Transportation Command (TRANSCOM) and Special Operations Command (SOCOM) fit into this structure as the functional

commands. The space enterprise fits under STRATCOM as Joint Functional Combatant Command- Space (JFCC-Space).

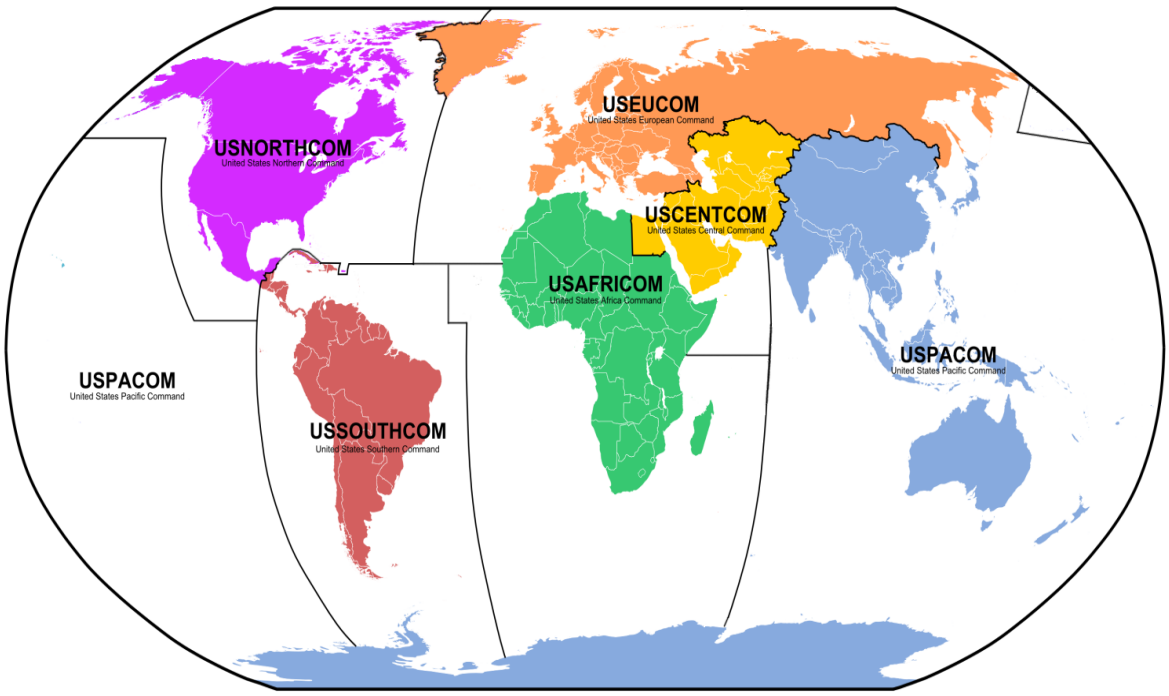

Figure 5. Unified Command Plan – Designations of COCOMs

2011 National Security Space Strategy

This was an important document which demonstrates the cooperative efforts between Department of Defense and the Intelligence Community. Jointly signed by Secretary of Defense Robert M. Gates and Director of National Intelligence James R. Clapper, it notes that "[m]aintaining the benefits afforded to the United States by space is central to our national security, but an evolving strategic environment increasingly challenges U.S. space advantages. Space, a domain that no nation owns but on which all

rely, is becoming increasingly congested, contested, and competitive. These challenges, however, also present the United States with opportunities for leadership and partnership. Just as the United States helped promote space security in the 20th century, we will build on this foundation to embrace the opportunities and address the challenges of this century." (NSSS, Jan 2011). The document addresses the Strategic Environment, the Strategic Objectives and the Strategic Approach to provide the DoD and IC with clear, consistent guidance in order to "implement [this Strategy] to inform future planning, programming, acquisition, operations, and analysis guidance" as it relates to the space enterprise. This NSSS codifies the goals and objectives from the 2010 National Space Policy, the 2010 National Security Strategy, the 2010 Quadrennial Defense Review and the 2009 National Intelligence Strategy.

2012 Defense Strategic Guidance

Secretary of Defense Leon Panetta released a new Defense Strategic Guidance, Sustaining U.S. Global Leadership: Priorities for 21st Century Defense for 2012. The foreword was written by President Obama who emphasized the current transitional period of our Nation and our Armed Forces as we were concluding combat operations in the Middle East and preparing for new challenges across the globe. SECDEF Panetta echoed these comments by noting that the Nation "is at a strategic turning point after a decade of war and, therefore, we are shaping a Joint Force for the future that will be smaller and leaner, but will be agile, flexible, ready and technologically advanced." The documents continues as it defines the ten "Primary Missions of the U.S. Armed Forces." Number five is the mission to "Operate Effectively in Cyberspace and Space." This paragraph states that "[m]odern armed forces cannot conduct high-tempo, effective operations

without reliable information and communication networks and assured access to cyberspace and space. Today space systems and their supporting infrastructure face a range of threats that may degrade, disrupt, or destroy assets. Accordingly, DoD will continue to work with domestic and international allies and partners and invest in advanced capabilities to defend its networks, operational capability, and resiliency in cyberspace and space." (Defense Strategic Guidance, 2012). Its an important distinction that the space medium, although coupled with cyberspace, made it into the Defense Strategic Guidance. This illustrates the importance placed on the space domain as a vital interest of the United States.

CHAPTER IV

RESULTS

It is clear in the preceding chapters that the 2001 Space Commission Report provided sound recommendations for the improvement of the National Security Space management and organization. Some of the suggestions, as noted previously, were acted upon and others were not. It is also evident that the nation has yet to achieve effective management and organization of the NSS. While the Department of Defense and the Intelligence Community have made significant strides in reorganizing for success there are a few key points that are still missing. These steps, if enacted, will provide a more focused, efficient and responsive force structure. Still needed is a clear, concise, consistent and long term national space policy, reinvigoration of the National Space Council (or at least the SIG), designate a single person (a space czar) responsible for the national level space entity, and quite possibly to establish a separate joint space force not under the auspices of the Air Force.

Way Ahead

I believe, as stated previously in the Defense Strategic Guidance, that we are at the threshold of a new global environment. This nation has accomplished many iterative steps over the last nearly sixty years in advancing along the national security space enterprise. However, the Space medium has become such an important aspect of our national fabric that we cannot delay any further in giving it its due attention.

We need a consistent, coherent, concise, and long term National Space Policy. Lt Col (at the time) Peter Hays and Dr. Karl Mueller stated in a 2001 edition of *Aerospace Power Journal* for their article, *Going Boldly – Where?, Aerospace Integration, the Space Commission, and the Air Force's Vision for Space*; "Imperfect but durable vision statements that merely get it less wrong than our potential adversaries (to use Michael Howard's phrase) are preferable to churning out new vision statements with every change in senior leadership." (Hays and Mueller, 2001). Now Dr. Hays and Col Arnold revisited this theme ten years later in the 2011 edition of *High Frontier*. They stated in their article, *Getting There From Here: Realizing the Space Commission's Vision 10 Years Later*, "we reiterate that it is more important to focus on the first-order issue of developing a robust and comprehensive vision for US spacepower than to become mired in seemingly endless debates about the best way to organize for NSS. Our recent missteps indicate that any road will get you there when you don't know where you're going; a more effective and better funded organization will only get you lost faster in these situations. Limited resources are always a problem, and although there is a clear need for much investment in some areas such as space situational awareness, simply throwing more money at the Air Force (or a new space service, for that matter) will not resolve America's unclear vision for NSS." (Arnold & Hays, 2011) A durable, viable and enduring National Space Policy vision statement is sorely needed. Reinvigorate the National Space Council or the Senior Interagency Group to provide input, monitoring, action and ensure execution of this vision statement. This is echoed by Col Arnold and Dr. Hays as "the president should lead development of a National Space Strategy and reestablish a [National Space Council] that is chaired by the National Security Advisor

and includes the OSTP director and chair of the Council of Economic Advisors." (Arnold and Hays, 2011).

There have been other important government reorganizations over the years resulting in significant advancements. One of the notable efforts was the National Defense Act of 1947 which restructured the War Department and the Navy Department into the Department of Defense; formed the United States Air Force and the Central Intelligence Agency; and established the Joint Staff. Another notable reorganization was the Goldwater-Nichols Act of 1986. It also restructured the Department of Defense; solidifying duties and responsibilities of the Joint Chiefs of Staff and the roles of the nine Combatant Commands. The Space Commission Report" also sought to make sweeping restructuring organizational changes in order to streamline the manner in which this nation conducts space enterprises and to conserve precious and valuable space assets / resources.

While 1957 may have been the beginning of the "space race", the National Defense Act of 1947 may well have been the beginning, or at least formalization, of the close relationship between the military and the intelligence community. The National Defense Act of 1947 established the United States Air Force as a separate service from the United States Army and also created the Central Intelligence Agency. It was a major reorganization of the United States government and guided its national security for many decades.

Goldwater-Nichols for National Security Space

In considering what should be recommendations for future reorganizations or better management processes, I considered how the Goldwater-Nichols Act changed our

government structure. The Center for Strategic and International Studies article by Colonel Michael Edwards, USAF, *Goldwater-Nichols Act for Homeland Security*, was written for reorganizing Homeland Defense but it easily works as a valid argument for improving our National Security Space management and organization also. "All cabinet-level departments need to join together in a Goldwater-Nichols type reform to look at man-made and natural threats and government responses in an integrated manner. By creating better communication and synergistic efforts our government will be better equipped to handle, in a cost effective manner, the outcome of a terrorist act or natural disaster. This course of action will drive a holistic approach for the development of capabilities that will be flexible and resilient while providing a proactive capability to prevent some of the threats facing us today and in the future." (Edwards, 2006). The time is ripe for this type of national level reform in order to better streamline the NSS management and organization.

National Security Space Management Reorganization

There are similarities in the recommendations between the 2008 Institute for Defense Analyses (IDA) Report, *Leadership, Management, and Organization for National Security Space*, and those of Dr. Hays and Col Arnold in their 2011 *High Frontier* article mentioned earlier. Both advocate for the creation of a dual-hatted National Security Space Authority who would serve as the USD (Space) and the Dep DNI for Space (See Figure 6). This position would also have Milestone Decision Authority (MDA) over space funding and the acquisition process. This is a critical requirement since the entity which controls the funding controls the processes. Another recommendation that has been advanced is to re-establish the USECAF and the DNRO

into one position. While I agree that this would be ideal, I would argue that the DSC serves this function by incorporating the IC into the DoD process.

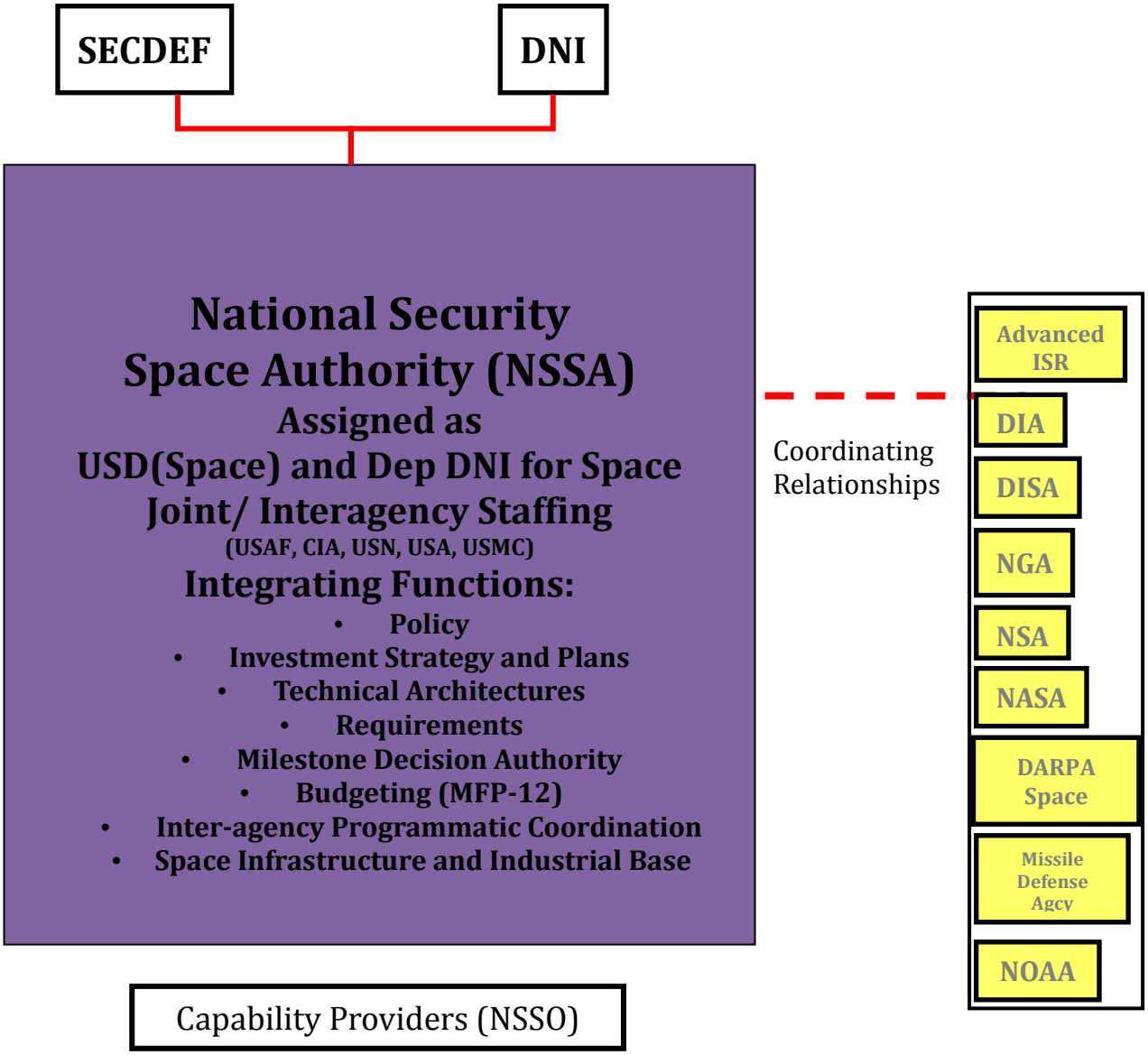

Figure 6. Consolidate National Security Space Leadership
Source: IDA, 2008

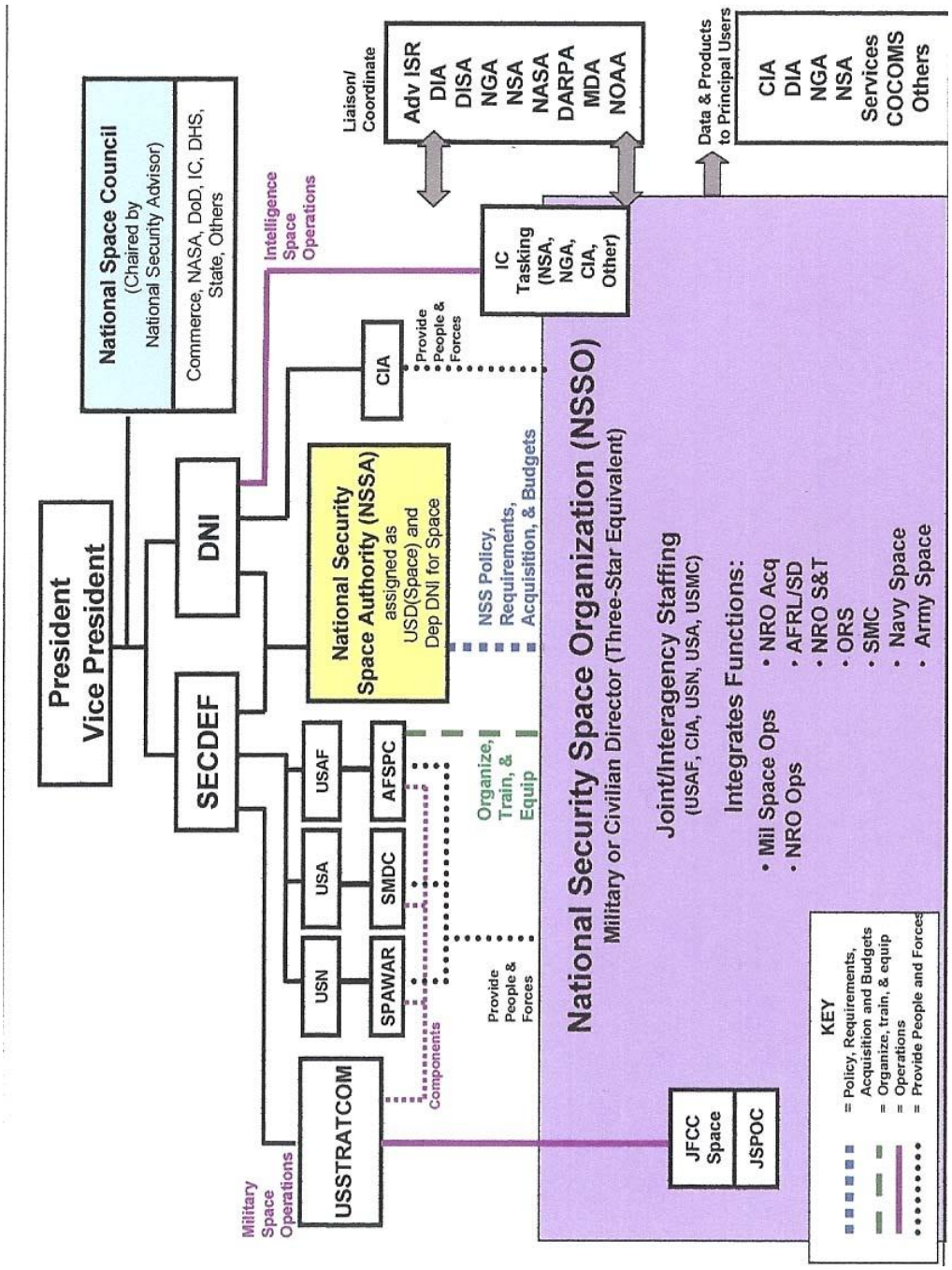

Figure 7. National Security Space Organization
Source: IDA 2008

The 2008 IDA Report also advances the reinvigoration of the National Space Council and the establishment of a National Security Space Organization. See Figure 7.

Col Arnold and Dr. Hays additionally advance the prospect of "[reestablishing] a unified command with space as its area of responsibility (AOR)… [creating] a Space Staff separate from the Air Staff… and control over personnel actions, including promotion decisions." (Arnold & Hays, Aug 2011).

In keeping with these recommendations and observations, I would submit, as Brig Gen MacLaughlin stated earlier in *High Frontier*, that we have it mostly right. There are a number of different reorganizations which may work, but I believe the iterative steps we have taken thus far are pointing us in the right direction. The next logical steps would be:

1. Appointment of one single entity or responsible agent to lead the Space enterprise on behalf of the USG. No Presidents have ever appointed a "space czar". If you conduct a web search for space czar, then you'll find there is no such entry. Presidents since FDR have designated nearly eighty other positions that have been a "czar" of one form or another, but never a space czar. A "Director of Space" may also work. This person would be able to coordinate activities among the many different agencies. I envision this position much like the current position of DNI. This course of action would structure the "Space Community" like the Intel Community. The Director of National Intelligence oversees 16 independent intelligence agencies. He does not exercise direct control over the agencies nor does he have the hire and fire authority. However, the DNI does control the budgetary oversight of the myriad of intelligence agencies. The President could appoint this person under an Executive Order. This one person would have the responsibility to coordinate all four sectors of space.

2. In agreement with Col Arnold and Dr Hays, as noted above, I would advocate creating a separate Space staff independent of the Air Staff. In actuality, there already exists such an entity, the DoD EA for Space. I would advocate making this an entirely joint staff office with representation from each of the services and not under the purview of the Air Staff. Eventually, when a US Space Force is created, then the "Space Staff" is already in existence.

3. I'm also in agreement with Lt Col Harter, from his article in the 2006 *High Frontier*, that now is the appropriate time to make a separate Space Force. Col Arnold and Dr. Hays advocated for a separate Space Corps within the Air Force in their *High Frontier* article. Their recommendation would create an Air Force Space Corps within the Air Force, much like the Marine Corps is part of our maritime forces and falls under the Department of the Navy. They also note that the Army Air Corps was part of Army before it was split off to become the US Air Force which "served as an interim step on the path to the creation of an independent Air Force in 1947." (Arnold and Hays, 2011). I would argue that AFSPC has already fulfilled that interim role since its establishment in 1982 and it is the appropriate time to make the next logical step in the process. JFCC-Space has also been a good iterative step in the transition to a separate Space Corps. Lt Col Harter probably best framed this argument in his 2006 ASPJ article in which he stated, "While such a reorganization of space forces into a separate, independent space force is understandably delayed due to the current global war on terrorism, it no doubt needs to be addressed sooner rather than later. Perhaps this is precisely the right time; as we wind down our war in Afghanistan, start laying the groundwork now to make a separate service and maybe we can realize this goal in 5, 10, or even 15 years. Some say

that a separate space force is not justified until there is a serious space peer competitor that challenges US space superiority. The response to that argument is that although the United States holds a healthy asymmetric space-power advantage today, it would be foolish to wait for national space forces to be threatened or allow a potential "Space Pearl Harbor" to occur when the opportunity exists now to organize space forces to prevent that very threat. An independent space force will foster a space-force culture, reduce competition for resources, and allow space-power theory and resulting combat capability to develop more effectively to counter future space threats." (Harter, 2006).

4. Re-establish USSPACECOM as a sub-unified command under USSTRATCOM. During my interview with Mr. Richard McKinney, Deputy Under Secretary of the Air Force for Space, he opined that bringing back USSPACECOM in some manner may be a way to advance the NSS management and organization efforts. This construct would be similar to the current organization of CYBERCOM. As a precedent, Cyber is the fifth medium of military operations and is currently a major sub-unified command under STRATCOM. It is commanded by Admiral Michael S. Rogers, USN, (four-star billet) who is also triple-hatted as the Director, NSA and Chief, Central Security Service. Each military service contributes to US Cyber Command: Army Cyber Command/Second Army consisting of Army Network Enterprise Technology Command/9th Army Signal Command, Army Intelligence and Security Command, 1st Information Operations Command, 780th Military Intelligence Brigade; Fleet Cyber Command/Tenth Fleet, Naval Network Warfare Command, Navy Cyber Defense Operations Command, Naval Information Operations Command; Air Forces Cyber/Twenty-Fourth Air Force, 67th Cyberspace Operations Wing, 688th Cyberspace Operations Wing, 624th Operations

Center, 5th Combat Communications Group; and the Marine Corps Cyberspace Command.

By comparison, space forces currently under STRATCOM, are organized as a Joint Functional Component Command-Space (JFCC-Space). This organization is commanded by Lt Gen John W. Raymond, USAF (three-star billet) who is dual-hatted as the 14th Air Force Commander. In order to put Space on an equal footing as Cyber, since they are both doctrinally mediums of military operations, then JFCC-Space should be re-established as USSPACECOM under STRATCOM and become a four-star billet once again. DoD is always concerned with creating more units, infrastructure and adding more personnel, especially in these times of budget cutbacks and personnel reductions. This vision though could be realized without any additional growth to the force and very little, if any, infrastructure costs. I would recommend using the four-star billet of AFSPC Commander, Gen John E. Hyten, as the head of the new USSPACECOM. He would have at his ready the already existing staffs of AFSPC in Colorado Springs, CO (Air Force), SMDC-ARSTRAT in Huntsville, AL and Colorado Springs, CO (Army), Space and Naval Warfare Systems Command (SPAWAR) in San Diego, CA (Navy) and JFCC-Space at Vandenberg AFB. In the spirit of "jointness", I would also recommend that the new USSPACECOM not be a solely Air Force position and that it be commanded by qualified four star general officers / admirals from all four services.

Lt Col Harter brought forth a wonderful quote from Major General William "Billy" Mitchell in his 2006 ASPJ article. Maj Gen Mitchell, considered by many as the Father of the Modern Air Force, advocated for a separate air service in the early 1900's when it was still a part of the US Army. "So long as the budget for the development of aircraft is

prepared by the Army, Navy, or other agency of the Government, aviation will be considered as an auxiliary and the requisite amount of money, as compared with the other services, will be subject to the final decision of personnel whose main duty is not aviation. The greatest deterrent to development which air forces combat in every country is the fact that they have had to be tied up to armies and navies where senior officers, unused to air work, were placed in the superior positions." General William "Billy" Mitchell US Army Air Service, 1925 (Harter, 2006) Lt Col Harter noted that if the word "space" is substituted for the word "air" in Maj Gen Mitchell's comments then you have a very similar argument for making space a separate service from air. He maintains as the Army shepherded the Air Force as it became an operationally decisive arm of the military, much the same way that the Air Force has brought space power and operations along. Lt Col Harter asserts that "[o]nce the Air Force became an independent service, airpower rapidly grew into a global, strategic instrument of national power." (Harter, 2006)

His further comments on this subject are critical to understanding and appreciating the essentiality of creating a separate space force. "However, as airpower was constrained during the post–World War I era, US space power was constrained during the Cold War and morphed to airpower doctrine, policy, and theory. In spite of this restraint, military space power has grown to be a pervasive influence on nearly every facet of military operations. The United States holds a decisive asymmetric space-power advantage — clearly it is too critical to be considered a subset of airpower. An independent space-force organization would fully unleash the true potential of space

power, allowing freedom to explore, develop, and refine space theory, doctrine, and policy without undue influence from other service cultures." (Harter, 2006)

As stated previously, I believe that we mostly have it right and we are mostly the way there. I would submit that with a clear, consistent, enduring space vision from the President, appointment of a central, senior level government official for emphasis and focus, and finally a NSS reorganization as outlined in this research paper, that we will continue to enjoy the benefits that we have realized from this important medium of space for many years to come.

CHAPTER V

DISCUSSION AND FUTURE WORK

I have analyzed the 2001 Space Commission Report in detail, conducted a literature review of many supporting documents, interviewed a senior government official, and proposed several viable courses of action to better enable management and organization of the national security space enterprise.

Future research areas to pursue would be to interview more commission members, senior government officials and military leaders for a broader understanding of what directions they believe the nation should undertake to achieve better national security space management and organization. As a testament to the criticality of enacting reorganizations now, consider the comments from Secretary of the Air Force Deborah Lee James. She remarked at the 2010 National Space Symposium when commenting about the numerous changes to NSS management and organization over the years that "these changes have reached the point where it is now time for the Air Force to review headquarters management of the space enterprise; and to consider with our DoD and interagency partners how we can better coordinate our work to serve the Nation's growing space needs." She further affirmed later in her speech that space is a "vital element of our national security" and that the "U.S. is increasingly reliant on space for its economy, security, and prosperity." (James, 2010).

General Howell M. Estes, III (USAF-Ret), a commission member and a triple-hatted commander of AFSPC, SPACECOM and NORAD commented in his 2011 High Frontier article that, "Every year within the national security arena there are a number of commissions, panels, boards, and so forth that provide recommendations to decision makers. It has been my experience that most of the recommendations are considered, but few are implemented. The Space Commission was a bit unique in this regard. Our chairman became the secretary of defense. This clearly gave a push to the recommendations we made. While not all were implemented, many were and had the desired effect on NSS. Since the 2001 Space Commission there have been other reviews of NSS, which says to me that work still needs to be done. I have heard people say rearranging the deck chairs (organizational changes) really does not get at the root causes of problems, and therefore, is not worth the effort. I disagree. We are dealing with a complex issue here. There is no single set of solutions that will be acceptable to all the parties concerned. However, it is important to keep chipping away at the problems and make changes where we can achieve agreement. We owe that much to our fellow taxpayers. More importantly, we owe it to our nation, which demands we do our utmost to ensure NSS is serving the greater interests of our national defense in the protection of all our citizens." (Estes, 2011).

Conclusions

I concur with Gen Estes' comments. It is important to continue to advocate for more sweeping changes within the top levels of our government. By continuing to search for a better national security space structure, perhaps as part of further research, participation from "think tanks" or further government studies we can more accurately

gauge the feasibility of this concept within our government and among other government agencies. I believe, as Gen Estes stated, that we owe clear vision, direction and oversight; along with a more streamlined and efficient NSS management and organization to our fellow citizens and our nation.

ACRONYMS

AFSC……..U.S. Air Force Space Command

ASD…….…….Assistant Secretary of Defense

ASD (GSA)…….…….…….Assistant Secretary of Defense for Global Security Affairs

AUSA……...……Association of the US Army

CIA……..……..Central Intelligence Agency

COCOM…….…….Combatant Command

CJCS……...……Chairman of the Joint Chiefs of Staff

DIA……..……Defense Intelligence Agency

DCI……...……Director of Central Intelligence

DNI……...…….Director of National Intelligence

DNRO…….……Director, National Reconnaissance Office

DoD…….…….Department of Defense

DoD CIO……....DoD Chief Information Officer

DoDD…….……Department of Defense Directive

DSC……..……...…….Defense Space Council

DUSD…….……Deputy Undersecretary of Defense

EA…….……..Executive Agent

IC…….……Intelligence Community

JFCC…..…….Joint Functional Component Command

JCS…….…….Joint Chiefs of Staff

MDA……....…….Milestone Decision Authority

MFP…….…….Major Force Program

NGA…….National Geospatial-Intelligence Agency

NOAA……...…….. National Oceanic and Atmospheric Administration

NRO……..……..National Reconnaissance Office

NSA……..National Security Agency

NSC…….…….National Security Council

NSpC……..……..National Space Council

NSSA……..……National Security Space Architecture

NSSS……...……..National Security Space Strategy

NSTC……..National Science and Technology Council

OMB…….…….Office of Management and Budget

OSR……..…….Office of Strategic Reconnaissance

OSTP…….. Office of Science, Technology and Policy

PSA…….……Principal Staff Assistant

SECAF…….Secretary of the Air Force

SECDEF……...……Secretary of Defense

SIG…….……..….Senior Interagency Group

SMC…..…… Space and Missile Systems Center

SSA…….…….Space Situational Awareness

USAF……...…….US Air Force

USECAF…….……Undersecretary of the Air Force

USD...……..……Undersecretary of Defense

USD (AT&L)……...……Undersecretary of Defense for Acquisition, Technology and Logistics

USD (I)…….....……Undersecretary of Defense for Intelligence

USD (P)……...…….……Undersecretary of Defense for Policy

USD (SII)……. Under Secretary of Defense for Space, Intelligence and Information

USG……..……..United States Government

USSTRATCOM……...……US Strategic Command

USSPACECOM……...……...…….US Space Command

USASMDC/ARSTRAT.....….US Army Space and Missile Defense Command/ Army Strategic Command

REFERENCES

Armor, James B., Jr., "Viewpoint: It is Time to Create a United States Air Force Space Corps" *Astropolitics* 5, no. 3 (September 2007): 273-88

Berkowitz, Marc J. "National Space Policy and National Defense," in *Spacepower for a New Millennium*, pp. 37-59

_____, National Aeronautics and Space Act of 1958, retrieved from http://history.nasa.gov/spaceact.html

_____, DoD Directive 5160.32, Development of Space Systems, March 6, 1961.

_____, DoD Directive 5100.01, Functions of the Department of Defense and Its Major Components, December 21, 2010.

_____, DoD Directive 5100.1, Functions of the Department of Defense and Its Major Components, August 1, 2002.

_____, DoD Directive 3100.10, Space Policy, October 18, 2012.

_____, Defense Strategic Guidance, Sustaining U.S. Global Leadership: Priorities for the 21st Century Defense, January 2012.

_____, Deputy Secretary of Defense Memorandum, Operation of the Defense Space Council, November 22, 2011.

_____, DoD Directive 5101.02, DoD Executive Agent (EA) for Space, January 25, 2013.

_____, DoD Directive 5101.2, DoD Executive Agent for Space, June 3, 2003.

_____, DoD Directive 5101.1, DoD Executive Agent, September 3, 2002

Edwards, Michael. *Threats at Our Threshold*. November 1, 2006. http://csis.org/programs/homeland-security-program/threats-our-threshold/2006-conference. (accessed March 18, 2013).

Fogleman, Ronald. "Spacepower for a New Millennium," in *Spacepower for a New Millennium*, pp. 285-89

Gates, Robert M., and James R. Clapper. *National Security Space Strategy*. Washington, D.C.: Government Printing Office, 2011.

Gillespie, Paul G., and Grant T. Weller, . *Harnessing the Heavens: National Defense through Space*. Chicago: Imprint Publications, 2008.

Gonzales, Daniel. *The Changing Role of the U.S. Military in Space*. Santa Monica: RAND Corporation, 1999.

Hayden, Dale L., "The Search for Space Doctrine's War-fighting Icon," *ASPJ*, November-December 2014, 55-65.

Harter, Mark E., Lt Col, USAF, "The Dawn of a Space Force," *ASPJ*, Summer 2006, Volume 20, No. 2.

Hays, Peter, and Karl Mueller. "Going Boldly—Where? Aerospace Integration, the Space Commission, and the Air Force's Vision for Space," *Aerospace Power Journal* 15, no. 1 (Spring 2001): 34-49

Howell M. Estes, III, "*The Aerospace Force of Today and Tomorrow*," in *Spacepower for a New Millennium*, pp. 165-74

Independent Assessment Panel. "Leadership, Management, and Organization for National Security Space: Report of the Independent Assessment Panel on the Organization and Management of National Security Space," Alexandria: Institute for Defense Analyses, July 2008

James, Deborah Lee, "The Challenges of Space Management and Organization, from remarks at the National Space Symposium, Colorado Springs, CO, April 13, 2010 found at http://www.af.mil/AboutUs/Speeches/Display/tabid/268/Article/143891/the-challenges-of-space-management-and-organization.aspx. (accessed November

Joint Staff, "Joint Publication 3-14: Joint Doctrine for Space Operations," (Washington: Department of Defense, 9 August 2002)

Joint History Office, "History of the Unified Command Plan, 1946-2012," (Washington: Office of the Chairman of the Joint Chiefs of Staff, 2013)

Lambeth, Benjamin S. *Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space*. Santa Monica: RAND Corporation, 2003.

Launius, Roger D. *Presidential Directive/NSC-37, "National Space Policy," May 11, 1978*. August 30, 2012. http://www.au.af.mil/au/awc/awcgate/nsc-37.htm (accessed October 25, 2012).

Logsdon, John M. *John F. Kennedy and the Race to the Moon*. New York: Palgrave MacMillian, 2010.

McDougall, Walter A. *The Heavens and Earth: A Political History of the Space Age*. Baltimore: Basic Books, 1985.

McKinley, Cynthia A.S. "The Guardians of Space: Organizing America's Space Assets for the Twenty-First Century," *Aerospace Power Journal* 14, no. 1 (Spring 2000): 37-45 http://www.airpower.maxwell.af.mil/airchronicles/apj/apj00/spr00/ mckinley.pdf

O'Hanlon, Michael E. *Neither Star Wars Nor Sanctuary: Constraining the Military Uses of Space*. Washington, D.C.: Brookings Institution Press, 2004.

Peebles, Curtis. *High Frontier: The U.S. Air Force and the Military Space Program*. Darby: Diane Publishing Company, 1997.

Report of the Commission to Assess United States National Security Space Management and Organization. Washington, D.C.: Government Printing Office, 2001.

Sheehan, Michael J. *The International Politics of Space; Space Power and Politics Series*. New York: Routledge, 2007.

Smith, Robert, U.S. Senator, *Congressional Record*, 20 November 2002 - *Report of the Commission to Assess United States National Security Space Management and Organization* (Washington: Commission to Assess United States National Security Space Management and Organization, 11 January 2001), Executive Summary and Chapter II

Stover, Luke R. and Johnson, Alan. "Space Separatism: Degree of Differentiation." *ASPJ*, November-December 2014, 17-37.