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THE NEW DOD SPACE MANAGEMENT PROCESS

A CRITICAL ANALYSIS

by

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Contents

	<i>Page</i>
DISCLAIMER	ii
LIST OF ILLUSTRATIONS.....	iv
ABSTRACT.....	v
INTRODUCTION	1
IMPETUS FOR CHANGE.....	3
Congressional Direction.....	4
Roles and Missions	9
ANALYSIS OF SPACE MANAGEMENT CHANGES	15
Deputy Under Secretary of Defense for Space.....	15
DOD Space Architect	18
Joint Space Management Board	23
ARCHITECTURE DECISIONS OUTSIDE THE PROCESS	33
Landsat 7.....	33
Weather Satellites	35
SUGGESTED IMPROVEMENTS.....	38
CONCLUSION.....	42
APPENDIX A: JOINT SPACE MANAGEMENT BOARD MEMBERSHIP	45
APPENDIX B: DEFENSE ACQUISITION BOARD MEMBERSHIP	46
BIBLIOGRAPHY	47

Illustrations

	<i>Page</i>
Figure 1. DUSD(Space) Organization.....	16
Figure 2. Space Architect Structure	20

Abstract

The new DOD space management process tried to improve on past performance, but still suffers from many inefficiencies. Congress dictated a solution of a space czar without focusing on the more generic problem of service roles and missions. The Commission on Roles and Missions had to struggle with military service turf battles and bureaucratic resistance to change in creating a compromise solution to Congress' requirement. The three new positions, the Deputy Under Secretary of Defense for Space, the DOD Space Architect and the Joint Space Management Board, inject additional levels of bureaucracy into the decision-making process for the military space effort. Inefficiencies include lengthened chains of command, increased oversight and review and delays in decision-making. The new process does not improve the process when changes are driven from outside the military—by Congress or by other government agencies.

Chapter 1

Introduction

The early 1990s saw an ugly battle between the military services over funding the MILSTAR communications satellite system. The Air Force was the lead funding agency but not the lead user. The Navy had the bulk of the requirements driving its operational usage but only provided a small amount of funding. This disparity led to an accusation the Air Force was cutting funding of MILSTAR in order to free-up budget for projects closer to the service's interests, like aircraft. Protests, accusations, recriminations and denials eventually played out in front of congressional committees. This same period of time saw the successor to the missile early warning satellite system go through a redesign every year. Each year the military services paraded a new design before Congress as they tried to define requirements, keep up with technology and keep the price tag low. An avalanche of acronyms kept the entire space community guessing as to what was the satellite du jour.

By the spring of 1993, Congress was demanding an end to the inefficiency they perceived in military space management. They wanted to know who spoke for space. At the same time, the declining defense budget was spurring a review of the roles and missions of the armed services, looking to eliminate duplication in order to fund future modernization. Finally, space itself was growing, both in overall budget and utility to the

warfighter. The Gulf War and the concurrent Revolution in Military Affairs had illustrated the increased utility of space to the military. These three influences combined to create a change to the military space management process.

The process for managing the U.S. military space effort has rapidly evolved in the last year. Three positions were created within the span of several months—a new Deputy Under Secretary of Defense for Space, a Department of Defense Space Architect, and a Joint Space Management Board. Because the process is still new, there are few examples available to decide whether the new process has significantly improved the situation. Lacking examples, this paper takes a critical look at this new management structure. It tries to predict where inefficiencies still exist in the process by examining the influences on the process and the new actors in the structure. These inefficiencies exist because of the various compromises necessary to respond to Congress while dealing with the turf battles and desires to maintain the status quo within the several agencies involved in military space. The result, while providing increased emphasis and attention to the value of space to the military, still has duplication of effort within the military, increased difficulty in getting military decisions through a convoluted board process and an ignorance of how some architectural decisions are made within the space arena.

Chapter 2

Impetus for Change

The Department of Defense (DOD) space management process has three new positions: the DOD Space Architect, the Deputy Under Secretary of Defense for Space [DUSD(Space)] and the Joint Space Management Board (JSMB). Two groups, Congress and the Military, were responsible for the definition of the management process and the creation of these positions. In order to evaluate this process, it is useful to examine the goals of these two groups and how they were satisfied. The overall goals can be summarized as a desire to increase efficiency in decisions relating to military space architectures during a time of declining budgets. Spending on military space had grown to be comparable in size to the budget of the civilian space program, attracting the attention of the congressional appropriations committees. This quest for improved efficiency in the space management process is best illustrated by the choice of a replacement for the Defense Support Program (DSP) missile early warning satellite architecture. The DOD's United States Space Command had been trying to define requirements for the last ten years which would lead to an eventual follow-on for the aging DSP satellites. Upwards of three billion dollars were spent on a variety of satellites, none of which went beyond studies and viewgraphs into production.¹ The inability to satisfy this "highest priority" requirement typified the frustration with the DOD space management process. As a result

of this and other problems, both Congress and the Department of Defense looked for ways to improve the way in which space architecture decisions were made.

This chapter briefly examines the desires of Congress and the DOD which drove the final solution. The two bodies approached the problem from different perspectives, resulting in a set of new positions and processes which will not significantly improve the process. The tension between the two groups results in a series of positions which add layers to the decision-making process without necessarily adding significant efficiency. Remaining chapters will look at each of the three new positions in turn. This chapter first examines the impact of Congress. The House of Representatives Defense Appropriations Subcommittee drove the requirement for a single authority on military space during hearings from 1993 to 1995. Appropriations language directed a specific solution, that the DOD come up with a "space czar." The resulting turf battles among the services are then reviewed to provide perspective on the new process. The military had to craft a solution to present to Congress which overcame contention between the service branches over space management. The final solution ended up being a compromise among the military branches (and intelligence community) to satisfy the Congressional committee. The resulting DOD space management process has not been significantly improved. The compromises resulted in additional players without significant value added. For better and for worse, changes had been made to answer the mail.

Congressional Direction

The driving force in Congress for reform in military space management was Representative John Murtha, the Chairman of the Department of Defense Subcommittee

of the Committee on Appropriations. The hearing on military space appropriations on May 11, 1993 was the starting point for the new positions examined in this paper. Normally most Congressman in the US House of Representatives could not cause such a change to be made within DOD. But Representative Murtha had direct control over the DOD Appropriations Act, a significant piece of fiscal legislation for the DOD. The subcommittee chairman was someone who the Department of Defense would not want to intentionally slight. Failure to remain on good terms with the chairman could jeopardize funding or bring about undesired levels of scrutiny. When Chairman Murtha's first question of the day asked how were the space programs coordinated in the Defense Department, it signaled the start of a two and a half year effort to provide an answer which would satisfy the Committee.

The witnesses in front of the committee, although not forewarned or prepared to answer the direct question, did a good job of explaining the process of managing space systems within the military. The flow from requirements submittal and validation, through acquisition and ultimately operation of military space assets was covered.² The chairman was not happy with the answers he heard. The line of questioning ended with Representative Murtha saying, "We will start working on some suggestions maybe by this time next year. We may not come up with a recommendation to consolidate anything. On the other hand, it seems like we should have somebody in charge of space."³ It was clear to the military they needed to come up with an organizational structure and process to satisfy the Committee or they would have help in doing so.

That there was (and still is!) inefficiency in the process is not argued against. But Congressman Murtha and the Committee tried to dictate a solution which did not attack

the basic problem. Each military service was created by law to organize, train and equip the forces under them. As such, there are different requirements and procurement programs to meet those requirements. As military space programs grew in size, they came into direct competition with other 'pet-projects' of the services. Programs like the Titan 4 heavy lift rocket booster and the previously mentioned missile early warning satellites had to compete against F-22 fighter aircraft and Aegis-equipped Navy destroyers for funds. The recent confiscation of funds from the National Reconnaissance Office for launching satellites to pay for B-2 bomber spare parts typifies this competition. Events like the Persian Gulf War in 1991 (the so-called first 'space war') underscored the growing utility of space to the military. The military services have all gotten on the bandwagon when it comes to wanting support from space. Under their legal charter, they want to equip their forces with satellite support. But the increasing price tag associated with space procurement and the emphasis on supporting the warfighter (equipping the force) meant space programs would have to go through the somewhat labyrinthine process of approval by the Department of Defense. This approval process has become more complex with the passage of the DOD Reorganization Act of 1986 (the Goldwater-Nichols Act) which gave more power to the military commanders-in-chief. Since warfighting commanders have to share satellites with other commanders around the world, as opposed to controlling them outright, there is more emphasis on making sure everyone is happy with the final solution provided by a space procurement. The process which Congressman Murtha and the appropriations subcommittee attacked was one which applied to any program which was useful to all the military services. Aviation, bombs, education programs, electronic warfare are just some of the items which go before Congressional committees with the

same risk of appearing to be in disarray because no one person can speak in authority for them. It was not unique to just space procurement. It was a process which strove to get as much support as possible in order to justify and defend the acquisition of these increasingly costly architectures. Unfortunately the process involves many decision-makers from the military services as well as the Office of the Secretary of Defense. Short of the Secretary of Defense or the Under Secretary of Defense for Acquisition and Technology, there was no one who could speak with authority for all space programs. The process of compromise, of give and take within the military tended to preclude that. But a single voice for space is just what Congress was asking the military for.

The services were guided by statements the Congressman made on what structure he favored. He provided two examples—an Assistant Secretary of Defense like the one running medical affairs who could answer any question from the Committee and the model of the Strategic Defense Initiative which had a “central command function.”⁴ In both cases, the examples he referenced were for organizations smaller in budget than military space and possibly easier to assign to one specific individual. The Congressman did not go on to argue for one individual to be in charge of all aircraft, for example, even though all military services have them. Recent history has demonstrated difficulties in the structure favored by Congress in the Strategic Defense Initiative Office (SDIO), renamed the Ballistic Missile Defense Office (BMDO). SDIO/BMDO was established by Congress as a separate entity from the military services. This would help the central command function execute its duties and speak with one voice. Recently, though, the director of BMDO has appealed to the Joint Chiefs of Staff for a list of the military’s priorities. By the summer of 1995 there were so many missile defense studies underway that they were

being misunderstood, ignored or used without objectivity to justify a particular position.⁵ The difficulties of the missile defense 'czar' in being able to keep control of the various efforts of the services should be a warning to anyone who attempts to create a similar space czar function. It is interesting to note the missile defense czar is a three-star general while the new space czar is a two-star general. If a three-star general is having difficulty controlling programs with a budget smaller than military space, then a two-star general may not have enough rank to do an already difficult job!

While Congressman Murtha did not like the organization and process involved in military space decisions, it is interesting to note the two studies performed during that time for Congress. Neither study took explicit exception to the process. The Congressional Research Service reported on military space programs in December 1992 study. Eight issues were identified for the Congress, covering cost-cutting, synergy with the commercial sector and space launch concerns.⁶ Reorganization was not an issue. A General Accounting Office report in April 1994 focused on missile warning and the MILSTAR programs. Again, the need for a single individual in charge was not the focus of any of the GAO's analysis or a recommendation from the report.⁷ It appears the Chairman's solution of a single agent for space was not driven by any specific study. As such, the solution has to be suspect. But rather than challenge the Chairman's solution of force-fitting a solution inappropriate to the basic problem, the military went off to answer as best they could.

One year later, in the spring of 1994, the Committee met (with Congressman Murtha still Chairman) to hear testimony on Defense space programs.⁸ The second sentence from the Chairman was "Who is in charge of DOD space programs? . . . [W]e are still

concerned that the only time there is any cooperation is when you actually appear before this Committee. There should be more coordination.”⁹ This time, the witnesses had an answer for the chair. The Department would provide a response to the Committee in August 1994 on space organization and management as part of the Military Roles and Mission Commission’s findings.

Roles and Missions

The Department of Defense was starting a Roles and Missions study in the spring of 1994 to examine efficiency in the military in order to free up resources for modernization. Military downsizing in the past several years had come at the expense of modernization of the forces. Meanwhile, the Committee had placed in the DOD appropriations conference report the requirement that DOD (and the intelligence community) acquisition responsibilities be placed under a single space acquisition executive by March 31, 1995.¹⁰ Although the Roles and Missions findings were not expected until later in 1995, the Defense Department took the opportunity to address Congress’s concerns with this study.

The pressures on the military budget, combined with the increasingly large slice of the resource pie invested in space and the Congressional solution made the debate over space a very public one. The first volley was fired by General Merrill ‘Tony’ McPeak, the Air Force Chief of Staff. He proposed solidifying the Air Force’s role from executive agent for space to being the military’s sole agent in space affairs. He stated his belief that “all of our military space business, acquisition and operations should be consolidated in the Air Force.”¹¹ The relatively small size of the Army and Navy Space Commands, when compared to the size of the Air Force space structure, would make it easy to eliminate

them and book the savings. More importantly, space belonged under the Air Force from a mission and doctrinal perspective. The mission of the Air Force was to “defend the United States through control and exploitation of air and space.” The Air Force guiding construct of Global Reach and Global Power defined controlling the high ground of space as one of its pillars. To deny the Air Force request to be the sole agent for the military in space would be like pulling a column out from under the Air Force’s reason for being.

The Army, Navy and even the US Space Command were quick to object. Rear Admiral Lyle Bien, commander of Naval Space Command stated, “We remain opposed to that notion [that the AF become the sole agent for the US military in space] . . . on the belief that life and war at sea are too foreign to be fully appreciated except by those who go there.”¹² The Chief of Naval Operations drew a different line. “We’re not a bazaar,” he said. He could not find any functions he would give up in the name of efficiency. Decisions should not be made in a budget way.¹³ Lieutenant General Donald Lionetti, head of US Army Space Command voiced a similar concern. “A complete and total assignment of everything having to do with space ought [not] go to the Air Force. We absolutely reject that as a smart idea.”¹⁴ Finally, General Charles Horner, Commander-in-Chief (CINC) of US Space Command, agreed each military service needs to be fully represented. As a CINC, General Horner was looked upon as a primary driver and creator of the military’s space requirements. His views, strengthened by the mandate given in the Goldwater-Nichols Defense Reorganization Act of 1986, were not to be lightly taken.

The Commission on Roles and Missions of the Armed Forces studied management control of military space programs against this backdrop. Briefings by the services to the

Commission followed the line of argument put forward by the commanders. Lieutenant General William Forster, the Army's highest-ranking acquisition officer, pointed out the major problems with a space czar:

- It would change the current working arrangement which was not a bad situation.
- Harmonizing requirements was the better improvement, especially between the black world and military space.
- Consolidation would probably make it more expensive.
- There would be another bureaucracy which could ultimately end up costing more than the current space procurement system.
- NASA would probably be forced to join because of the commercial aspects being pursued by military acquisition.¹⁵

The thread throughout many of the statements seemed to be coordination, not a change in roles and missions, was called for. To actually change service missions would mean a change in the allocation of resources. From an Air Force perspective it was a no-lose situation to propose total ownership of the process. As the largest space service, they would probably not lose any influence. Even if a space czar was appointed, the likelihood was very high that it would be an Air Force officer who filled the billet. For the Army and the Navy, though, the Air Force proposal would pull resources from the Army and Navy. Better to keep the status quo than risk losing everything. The CINC for US Space Command would also be expected to argue for the status quo. He would lose some of his authority if one service ended up holding sway over anything he needed. Rather than risk losing, the services were arguing to keep what they had. This was somewhat opposed to what Congress expected to hear from the Roles and Missions findings!

In the end, these arguments did not quite sway the Roles and Missions Commission. Congress expected a space czar, whether the services felt the need or not. But rather than give in to any one service, the solution was to kick the problem upstairs into the Office of

the Secretary of Defense. Beginning in late 1994, three changes were announced which restructured the DOD space management process. There would be a Deputy Under Secretary of Defense for Space, consolidating space policy and acquisition into a single person. A DOD Space Architect (the 'space czar') would develop an integrated defense space architecture. Finally, a Joint Space Management Board (JSMB), bringing together military and intelligence community space systems, would provide a forum discussion of policy, acquisition, architecture and funding issues.¹⁶ No one service had been excluded from the resource pie. But they had all been given the opportunity to coordinate through another level of bureaucracy! And rather than one space czar, there were now three entities to be dealt with.

The road to get to a new management structure for military space efforts had been marked by service disagreements. The resulting decision was a solution, placed within the Office of Secretary of Defense, which would keep the Air Force from being able to claim it was in charge while placating the Army and Navy commanders. In order to get one individual in front of Congress, responsibilities had been duplicated or shifted. Not necessarily for efficiency or streamlining, but because that is what Congress wanted! Inefficiencies in the new structure, driven by the need to have one solution satisfy two different viewpoints, is discussed in the remainder of this paper.

Notes

¹The variety of DSP replacement programs include the Advanced Warning Satellite (AWS), Boost Surveillance and Tracking System (BSTS), the Follow-on Early Warning System (FEWS), DSP++, DSP-II, Alert, Locate, and Report Missiles program (ALARM), the HERITAGE sensor program. The current system going through the research and development process is called SBIR—the Space-Based Infrared system.

²The primary witnesses during this session of questioning were Dr. George R. Schneider, Director, Strategic and Space Systems, Office of the Under Secretary of

Notes

Defense for Acquisition and Major General Donald G. Hard, USAF, Director of Space Programs, Office of the Assistant Secretary of the Air Force for Acquisition. See *Department of Defense Appropriations for 1994*, Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, 103d Congress, 1st session, 1993, p. 341.

³*Ibid.*, p. 379.

⁴U.S., Congress, House, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1994*, before a subcommittee of the Committee on Appropriations, House of Representatives, 103d Congress, 1st session, 1993, p. 377.

⁵"O'Neill's Perplexities" *Aviation Week and Space Technology*, September 18 1995, p. 19; "Missile Studies Saturate Pentagon," *Aviation Week and Space Technology*, September 25, 1995, p. 35.

⁶Congressional Research Service, The Library of Congress, Science Policy Research Division, *Military Space Programs in a Changing Environment: Issues for the 103d Congress*, report prepared by Marcia S. Smith, 92-879SPR, December 1, 1992.

⁷Government Accounting Office, National Security and International Affairs Division, *Military Space Programs: Comprehensive Analysis Needed and Cost Savings Available*, statement of Louis J. Rodrigues before the Subcommittee on Acquisition, Committee on Armed Services, House of Representatives, GAO/T-NSIAD-94-164, for release April 14, 1994.

⁸The prime witnesses were slightly different from the previous year. Dr. Schneiter was still present as Director, Strategic and Space Systems, but Major General Hard had been replaced by Brigadier General Sebastian Coglitore. Additionally, Air Force Space Command, the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence as well as the Under Secretary of Defense for Policy were also represented by witnesses before the committee. These last three offices are key players in military space, but had not been represented the previous year. See *Department of Defense Appropriations for 1994*, hearings before a subcommittee of the Committee on Appropriations, House of Representatives, 103d Congress, 1st session, 1993, p. 45.

⁹U.S., Congress, House, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1995*, before a subcommittee of the Committee on Appropriations, House of Representatives, 103d Congress, 2nd session, 1994, p. 47.

¹⁰"Kaminsky sworn in; will be player in space management study," *Aerospace Daily*, October 5, 1994, p. 20.

¹¹Steven Watkins, "Space Chiefs assail McPeak plan," *Air Force Times*, April 18, 1994, p. 3.

¹²*Ibid.*

¹³"Navy resolutely opposed to giving up any roles and missions," *Aerospace Daily*, October 19, 1994, p. 89.

¹⁴Steve Weber, "Lionetti defends Army's space role," *Army Times*, August 29, 1994, p. 30. For additional perspectives from the Army see "Army sets space policy" in the same edition of *Army Times*.

Notes

¹⁵“Army acquisition official says space czar could end up costing more,” *Aerospace Daily*, November 21, 1994, p. 265.

¹⁶“Space Forces Essential to Modern Military,” *Defense Issues*, Vol 10, No 41, March 23, 1995.

Chapter 3

Analysis of Space Management Changes

Three changes emerged from the dialogue among the military services and Congress on management of military space. The first two, a new Deputy Under Secretary of Defense for Space and the DOD Space Architect, were formally chartered early in 1995. The last, the Joint Space Management Board, did not emerge until the end of the year, after lengthy discussions on membership and authority. This section of the paper examines these three positions, focusing mostly on areas of duplication and process inefficiency. Many of these difficulties are the result of the competition between Congress and the military to solve the problem of inefficiency in space program management. A Congressional desire for a single point of contact for space collided with the services' desire to maintain a status quo. The compromise, while serving to provide focus on space architectures, policy and programs, still has several flaws which need to be corrected before efficiencies can be gained.

Deputy Under Secretary of Defense for Space

On the surface, the position of DUSD(Space) is the least controversial. The charter from the Office of Secretary of Defense was to be in charge of space acquisition and policy. Historically, acquisition authority has been legally vested in the Under Secretary of

Defense for Acquisition and Technology, a position currently held by Dr. Paul Kaminski. In order to handle acquisition, authority was passed down from Dr. Paul Kaminski, the Under Secretary of Defense for Acquisition and Technology [USD(A&T)] to the DUSD(Space). Since the new deputy under secretary works and reports to Dr. Kaminski, this amounts to simply moving some of Dr. Kaminski's decision-making authority down a notch within the existing organization (see Figure 1).

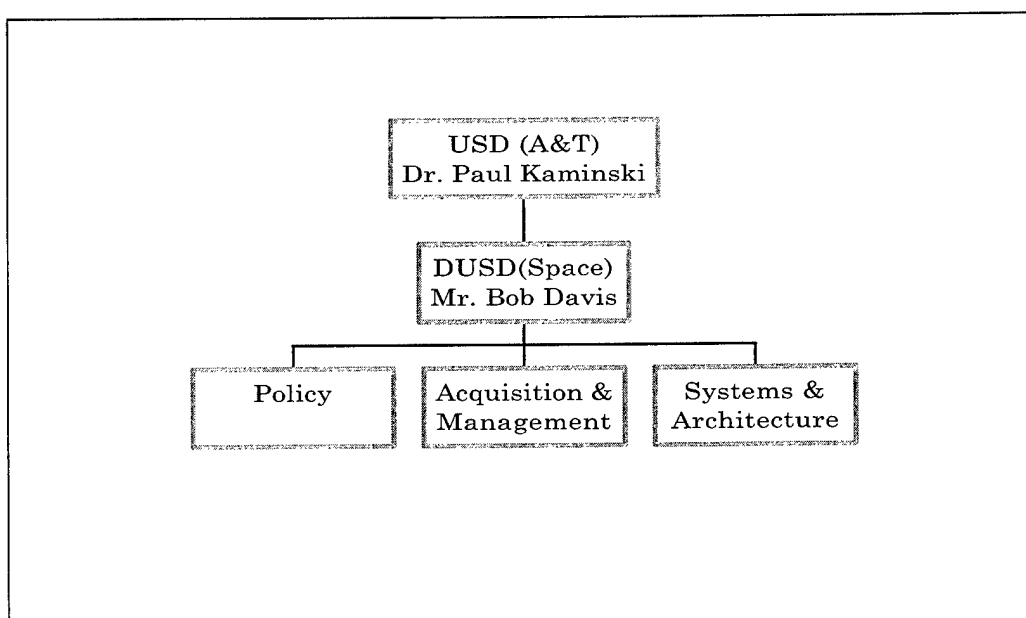


Figure 1. DUSD(Space) Organization

This pushing down of acquisition authority has two problems. As Under Secretary of Defense for Acquisition and Technology, Dr. Kaminski has acquisition decision authority for aircraft, ships, communications, rockets, satellites, tanks and all manner of large military projects. He was a single point of contact for space. Creating a Deputy Under Secretary for Space implies he does not have the time to adequately address the inefficiencies in the space arena. If this was the case, then there must be inefficiencies in

every other overlapping area between the military services. But space is the only military functional area singled out within the acquisition office. The other four deputy undersecretaries (DUSD) are responsible for advanced technology, environmental security, logistics, and acquisition reform. Nowhere is there a DUSD for aircraft, ships or ammunition, all areas of considerable service overlap. For these areas, acquisition authority continues to reside with USD(A&T). There are, undoubtedly, inefficiencies in all of these other areas. But rather than creating a myriad of under secretaries in the mold of Congress' approach, it might have been better to attack the root cause of these inefficiencies. From this perspective, the prediction of increased management costs by the Army acquisition chief came true. Rather than re-align duties within the DOD, a new position and staff were created.

The second problem with pushing down acquisition authority to the DUSD(Space) is whether the position really has authority. The previously mentioned Goldwater-Nichols Act also concerned itself with acquisition streamlining. Space Based InfraRed (SBIR), the new missile early warning system, serves as a good illustration of this concern. Under the law, there are to be no more than two intermediate levels of management between a program manager and the top acquisition decision authority. Nominally, this meant the Air Force colonel running the SBIR program in Los Angeles would report through the Program Executive Officer for Space, then through the Air Force Acquisition Executive, and finally to the USD(A&T) who was the legal acquisition decision authority. With the introduction of Mr. Bob Davis as the Space Acquisition Executive, there appear to be three intermediate levels. Since there is no sign the existing two intermediate levels have been stripped of authority, the USD(A&T) must have excused himself from acquisition

decision authority. Yet the USD(A&T) continues to hold that power in his position as co-chair of the Joint Space Management Board (discussed later in this section). Because of the newness of the process, it is not yet clear what is the true division of power between Dr. Kaminski and Mr. Davis. The most likely result though is a series of additional reviews for space programs. One set to allow Dr. Kaminski to exercise his authority under law and another to get the new Deputy Under Secretary for Space prepared to speak as the single voice for military space in front of Congress. A new player and staff have been injected into the middle of an existing organization. This requires more time and effort to arrive at decisions dealing with more people who can say no and the increase in effort to get them to say yes.

DOD Space Architect

A second element in the new space management process is the organization of the DOD Space Architect, often referred to as the Space Czar. While Congress looked to one individual (a Space Czar) to speak for military space programs, the DOD created two—the DUSD(Space) previously discussed and the Space Architect. The label of czar is applied in the press to one or the other of these individuals, illustrating the confusion which will result with the new structure.

Part of the confusion, and resulting increased inefficiency in the process, can be traced to the source of the idea for a Space Architect. In a 1994 briefing titled “Air Force Space—Then and Now,” the Director of Plans for Air Force Space Command laid out the problem as viewed by the Air Force. The declining budget environment led to an inability to generate and sustain new program starts. The decisions made on space systems were

continually being reassessed. (The replacement of the Defense Support Program satellites is often pointed to as an example of this continual reassessment). Each service generated programs to address mission needs, resulting in overlap among the services. The solution, called the Seven Strategies for Space, included a Space Architect to help focus on integrated architectures cutting across mission stovepipes. Although the briefing did not come out and say it, the proposed ‘seven strategies’ would logically fall to the Air Force. The officer appointed as Architect “*ideally* (emphasis added) would be in charge of all resources for U.S. unified space organization and be responsible for strategic investment strategy and an integrated budget.” Inputs would be received from all services and other agencies. “Funds and other resources could be shifted as necessary to accomplish unified space goals.”¹ Supporting this *ideal* (emphasis added) arrangement would be two subordinate offices—the Space Mission Architect and the Space System Architect.²

What ended up being created was not quite the ideal arrangement the Air Force recommended (see Figure 2. Space Architect Structure). On the one hand, they got the Space Architect position approved. But their original briefing did not envision a DUSD(Space), hence the emphasis on budget authority and the role of ‘accepting’ inputs from other services and agencies for the Space Architect. Most likely the reaction of the other military services to the initial Air Force position to become the lead authority for space led to a downgrading of the role of the Architect. Budget authority was not vested in the Architect, with the charter explicitly stating “the Architect will have no direct acquisition authority.” The role of taking inputs from other services was softened to one of coordination. Once the position of DUSD(Space) was created, the Air Force modified their concept to include direct reporting of the Architect to the Under Secretary. But

again, the ideal relationship was modified to a less ideal structure. The DOD Space Architect assists the DUSD(Space) and submits proposed architectures through him. But the Architect reports through the Air Force Acquisition Executive to the Defense Acquisition Executive. This essentially buries the position within the Air Force, rather than elevating it to a role above the services within the Office of the Secretary of Defense (OSD). The chairman of the Commission on Capabilities of US Intelligence Agencies summarized the problem when speaking before the National Press Club in March of 1996. "It's hard to be a czar when you're not in command and control of the people who do [sic] the war." The DOD Space Architect has to accomplish his job through coordination rather than outright control. This helps increase the difficulty in getting military space streamlined.

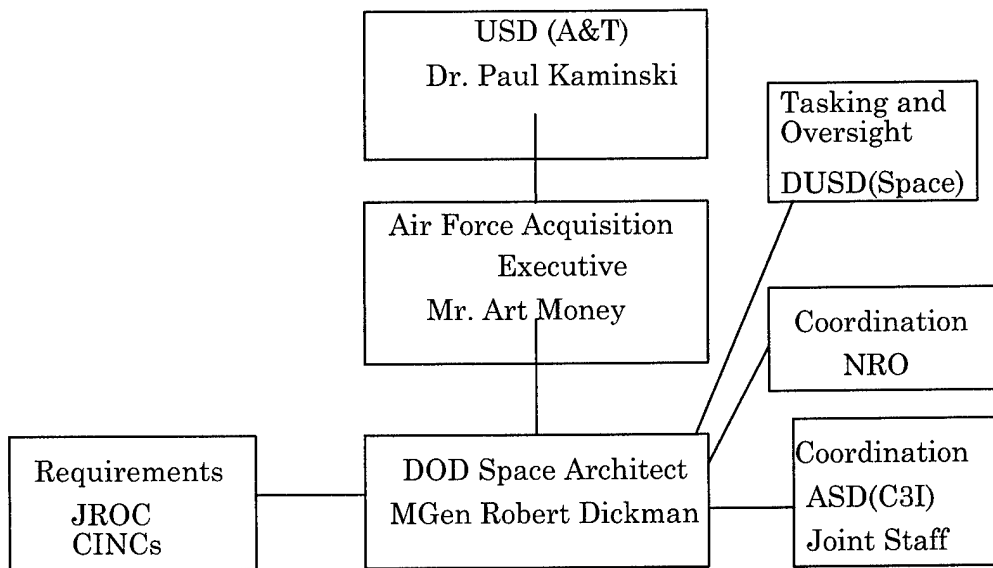


Figure 2. Space Architect Structure

Two specific areas of coordination bear watching in the future. One is the overlap between the Space Architect and the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence [ASD(C3I)]. This office is

responsible for providing advice to the Secretary and Deputy Secretary Defense for C3I, including warning, reconnaissance, and intelligence and intelligence-related activities conducted by the Department of Defense. In this capacity, ASD(C3I) is responsible for establishing policy and providing direction . . . on C3I related space systems; telecommunications; identification, navigation, and position fixing systems; surveillance, warning and reconnaissance architectures. . . .³ This has included the military communication satellite architecture (including DSCS and MILSTAR) and the missile early warning architecture (DSP, FEWS, ALARM, Brilliant Eyes). It will take time to establish the boundaries between these two offices.

Another conflict is with the Program Executive Officers (PEO) established by the Department of Defense in 1991. This is another area where the role of Architect is muddied by conflicts with pre-existing jobs within the DOD. The conflict comes with the PEO for Space. A Defense Management Review during 1990-1991 produced several initiatives to produce a more effective military force through streamlining of acquisition. This was one of a series of almost annual reviews (e.g., Packard Commission, Carlucci Initiatives, Defense Management Review, the Lightning Bolt Initiatives, the Federal Acquisition and Streamlining Act of 1994) aimed at reforming acquisition. It is interesting to note the parallel between acquisition reform and space management reform. Both have to be done in an environment where reform could remove controls and formal structures that the military services have had in place for years. The military services have become adept over the years at playing the acquisition game, horse trading programs between themselves, and operating under a kind of a “you don’t gore my sacred ox and I won’t gore yours” atmosphere. But the pressures of a declining budget, both in space and force

modernization in general have led to changes in how the game is played, concerning everyone who thought they knew the rules.

The change to the rules in 1991 was the creation of PEOs. A Program Executive Officer oversees an area of similar systems, such as information systems, command/control/communications, or in this case, space.⁴ The PEO became part of a new, three-tiered streamlined management system. Satellite program managers reported through the PEO, up to the Air Force Service Acquisition Executive and then to USD(A&T) if required. This streamlining was designed to allocate responsibility to the proper levels and give commensurate authority. When it comes to acquisition matters, in theory there is no conflict between the PEO for Space and the Space Architect, since the Space Architect has no acquisition authority. But there is an overlap when it comes to architectures. By funneling programs through PEO for Space, a certain synergy in architecture design occurs. Acquisition does not occur in a vacuum. Architectures have to be addressed by the PEO to do the job. This part of the PEO's job has not been replaced with the appointment of SpArch. This overlap will increase the inefficiency of the space management process.

Originally, it was recommended the Architect report to the Deputy Under Secretary for Space. Instead, the position was pushed into another command chain, under the Air Force Acquisition Executive. As long as the Architect is an Air Force general officer reporting through the Air Force chain of command, there will be some level of service parochialism. The statements made by those representatives of the Army and Navy when the Air Force suggested it be placed in charge of space lend credence to the suggestion that the Architect will be viewed as an Air Force spokesman. Unfortunately, the military

is not yet organized in a way which avoids this problem. General Dickman, the Space Architect, has described his office as a line organization. He does not want to be placed under the DUSD(Space) because that is a staff organization. The occasional perception of parochialism is one which the new process will have to live with.

Finally, there is some data after the first few months of the appointment of the Space Architect which sheds light on how 'efficient' the new role is performing. On the one hand, there was a kick-off meeting sponsored by the Architect's office to develop a military satellite communication architecture.⁵ But there are also other announcements in the recent press. The Defense Mapping Agency recently sponsored a meeting to work out an infrastructure to make space assets more useful to combat units.⁶ The Navy recently reactivated a project called Challenge Athena, aimed at an integrated architecture that utilizes both military and commercial satellite communication systems to provide high data rate service to the fleet at sea.⁷ The new Space Architect appears to be out and about, performing his job to develop integrated space architectures. But rather than being the sole organization for doing so, it looks like his is just one more in a group of organizations working on space architectures.

Joint Space Management Board

A major feature in the evolution of space systems is the blending of the distinction between military space systems and those of the national intelligence community. Several recent examples typify this merging of requirements. The new Space-Based InfraRed satellite system utilizes what is euphemistically called 'the Heritage Sensor' as its payload.⁸ The sensor appears to have come from the intelligence community but has practical uses

for the military. The Gulf War highlighted the military's need for improvements in satellite reconnaissance, an area historically left to the intel community. The recent shutdown of an Air Force Captain and his F-16 over Bosnia, partially as a result of slow notification from national intelligence agencies about active missile threats, poked at the military application of signals intelligence data. The pendulum has been swinging for the last few years towards increased emphasis on the military's requirements for support from space over those of the national intelligence community. Previously, during a time of large defense and intelligence budgets, there was enough money to keep both sides happy. Now, though, the resources are scarcer. The battle for resources, for preservation of institutions and bureaucracies has spread to cover the divide between military space and the intelligence community.

The fight to preserve bureaucracies and their traditional authorities led to the creation of a third entity in the military space management process, a Joint Space Management Board (JSMB). The JSMB provides or performs two basic functions:

- insight for the military and intelligence communities into each other's programs;
- replaces the Defense Acquisition Board for military space acquisition programs.

This has given the military additional insight/control over intelligence community space projects and architectures. But at the same time, the JSMB has allowed the intelligence community to have a vote in military space systems in its role as replacement for the Defense Acquisition Board. Adding a whole new gallery of players has increased the difficulty the military has in getting to a decision. Not only do the DUSD(Space) and the Space Architect have to coordinate and control the diverse opinions within the military, they now have to work with a set of players totally outside of the DOD who have a say in

the decisions. This creates a new set of inefficiencies in space management, particularly with respect to the decision-making responsibility of the JSMB.

The charter for the Joint Space Management Board was approved on 13 Dec 1995 by Secretary of Defense William Perry and Director of Central Intelligence John Deutch. The JSMB is "to ensure that defense and intelligence needs for space systems . . . are comprehensively satisfied within available resources, using integrated architectures to the maximum extent possible."⁹ It took several months to approve the charter, with much of the time spent arguing over the seating chart. One individual involved in the process of establishing the charter said one major concern was how many seats the Central Intelligence Agency should have on the board. With the Deputy Director of Central Intelligence as a co-chair, why did the CIA need a second vote in the person of the Executive Director, CIA? Similarly, other agencies were advised by their staffs that they needed to get voting membership in order to avoid the impending loss of their independent authority! One memo stated "roles and missions reviews usually become land grabs and this effort demonstrates that tendency: your authorities as [left blank by this author] may be jeopardized." The result is a 26-member board (see Appendix A for a list of members) chartered to review and approve defense space architectures and program plans.¹⁰ It is this large body of people who are to function as the replacement to the Defense Acquisition Board.

The Defense Acquisition Board (DAB) is the current oversight/decision-making body for major Department of Defense acquisition programs. Decision-making is done by the chairman of the DAB, the Under Secretary of Defense for Acquisition and Technology [USD(AT)]. Before the JSMB was chartered, satellite programs which were deemed

“major” in nature came before the DAB for review and issue resolution.¹¹ These reviews were the formal approval to proceed through each phase of the acquisition process, from Concept Exploration to Demonstration/Validation to Engineering/Manufacturing/Development and finally into Production. The members of the Defense Acquisition Board (shown in Appendix B) represent the interests within the DOD community.¹²

When you compare the listing of the DAB members with that of the JSMB, many of the names appear as common between the two. This is expected, given the direction that the JSMB will replace the DAB. But one has to wonder why replace one forum (with a proven track record over the years) with a brand new forum containing over twice as many players? Also, not everyone who sits on the Defense Board has a seat at the Joint Space version. Director, Operational Test and Evaluation (DOT&E), as well as the Committee Chair for Strategic and Space Systems are absent. The DOT&E has legal requirements for verifying the suitability and effectiveness of defense programs. (In fact, Congress created the role of DOT&E after attempts by the military to field poor performing weapon systems such as the Sergeant York Division Air Defense weapon. DOT&E provides a yearly report to Congress on Test and Evaluation as well as certifies a variety of items before a major defense system goes into production.) The Committee Chair performs a bulk of the milestone documentation review and presents the findings to the DAB. Again, some of the documentation behind a major space system (such as MILSTAR or SBIR) is mandated by congressional legislation. The lack of these two key players on the Joint Space Management Board says the JSMB is not only larger than the previous board, but unable to perform several key functions! This may be a driving reason behind a statement in a memo from the Vice Chairman of the Joint Chiefs to the

USD(A&T), the two key players on the DAB, which stated, "With regard to internal DOD coordination of issues, I concur with your recommendation for the establishment of a Defense Space Management Board (DSMB) to provide a forum . . . for us, the Services . . . to review space issues on the JSMB agenda."¹³

As large as the JSMB appears, there is one player who is conspicuous by absence. Paragraph 1 of the JSMB charter gives the board the authority for oversight of "the single National Security Space Architect."¹⁴ This individual is to oversee the integration of defense and intelligence space architectures. No one has been named to this position. An earlier draft (30 June 1995) of the charter refers to a single space manager for integration of defense and intelligence space programs. Other documentation refers to a possible Space Acquisition Executive who would propose space policy, architectures, budgets and programs to the JSMB. This individual would have an integrated Air Force and National Reconnaissance Office (NRO) staff. Most likely, the National Security Space Architect was envisioned to be the Director, NRO who is also serves as the Assistant Secretary of the Air Force for Space. The position is currently staffed, but that of National Architect is open. There is a possible explanation the position is still open. The National Architect looks good on paper, but it would get in the way of the true decision-making arrangement for military and intelligence space programs. Namely the relationship between DCI Deutch and SecDef Perry. Between them they control the requirements and budget for the government's space effort (excluding NASA and minor efforts by offices such as Department of Commerce or Transportation). It is no secret Dr. Deutch and Dr. Perry get along well (Deutch was Perry's Deputy before taking on the job of DCI). Early drafts of the JSMB showed a membership of only four players, reporting to the DCI and SecDef.

This may have been a small enough group to be trusted to make decisions. But when the board expanded to its current size, the DCI and Secretary of Defense may have drawn the line by deciding to leave open the position of National Architect. This would allow the real decision-making to be done in a more informal setting between the two agency/department heads.

One of the strengths of the previously used Defense Acquisition Board was the policy of decisions being event-driven, not calendar-driven. Until a satellite program had met the requirements laid out for it, no milestone review would occur. (Of course, failure to eventually achieve the requirements in a timely fashion could prompt the chairman to call for a special review to determine the feasibility of continuing the program!) This allowed the program managers to concentrate on executing the program, not briefing it. The new Joint Space Management Board has not adopted this event-driven approach. Instead, it is starting out as calendar-driven. An early draft of the JSMB charter called for yearly meetings. The 30 June 1995 draft changed that to quarterly meetings. The final charter modified the policy to include "meet[ing] on the call of the co-chairs, or at the request of any member, but at least quarterly. . . ."¹⁵ The challenge will be for the meetings to be called when program decisions are needed, rather than letting the agenda drive program readiness.

One JSMB meeting has occurred. The results support the concern that a body this large can come to a timely decision. In early January 1996, the principals gathered to discuss the issue of the Global Broadcast Satellite (GBS). Commercial success in the field of direct broadcasting prompted the military to consider embracing this mature technology as rapidly as possible. The ability to pass large amounts of data around the world by using

the high bandwidth of direct broadcasting could solve many problems. The story of flying the Gulf War Air Tasking Order to the Navy's carriers because it was too large to fax over the limited bandwidth circuits is still fresh in the military's memory. Programming needed to be done by late spring of 1996, in order for GBS to be included in the fiscal year budget for 1998. Any restructuring of the fiscal year 1997 budget would also have to be done quickly, since the Congressional committees would review the DOD's budget within a couple of months of the JSMB meeting. The short time span necessitated the space management structure come to grips with basic decisions of architecture and authority in a quick fashion. What the JSMB decided to do was gather more data, at the request of the CIA representative.¹⁶ In the absence of a decision, the Air Force decided that it would fund the entire program. (Originally, a proposal was for joint funding between the Air Force and the Intelligence Community.) It is not clear whether this was due to a self-serving desire to capture control over a new satellite program or in selfless recognition that a decision was required for the good of all! But whatever the reason, no decision came from the JSMB. The Navy also has shown great interest in the GBS program. Mr. John Douglas, the Navy's acquisition chief stated, "we need to get onboard the last three satellites that are going up in the [GBS] constellation."¹⁷ As a result, the Navy is now pushing to gain funding for the communication satellite system. According to Mr. Douglas, the need to gain an interim capability has made GBS one of the Navy's top priorities. While funding was not in the budget, the service was actively trying to find money for both fiscal year 1996 and 1997. Eventually, the JSMB will have to come to grips with issues such as lead agency, funding shares and architecture approvals. But if

GBS is any example, military space management is certainly no better off than it was before the reorganization.

The Joint Space Management Board has introduced additional inefficiency into the DOD space management structure. It is true that there is a joint military-intelligence forum which will look across both classified and unclassified space activities. This is a positive step, for it provides visibility for both sides into each other's programs. This will help, in theory, create synergy among the various satellite programs in a time of declining budgets and fading distinction between military and intelligence systems. But the JSMB does so while laboring under serious handicaps. The large structure of the board will make it difficult to achieve timely decisions. With twice as many members as the existing DAB, military space programs will have to go through an increase in coordination time. This was demonstrated in the first JSMB meeting when the Global Broadcast Satellite was delayed for more information. More players also means more supporting analytical staffs which, unless truly independent, tend to bias their studies in favor of their agency. The old adage of "too many cooks" could be a real threat to achieving the goal of better space systems at lower cost. The new JSMB dilutes the power of military organizations chartered to perform space acquisition, at the very time when acquisition streamlining is seriously needed. Finally, if the JSMB works well in the future, it will undoubtedly be due to personalities. Specifically people like DCI Deutch, SecDef Perry, Under Secretary Kaminski and the head of military requirements, Vice-Chairman Owens. These folks seem to work well together, as shown by their ability to put together organizations like the JSMB or the new National Imagery and Mapping Agency. But what happens when they leave? Admiral Owens has retired as Vice-Chairman of the Joint Chiefs of Staff, leaving a

new player to take on his role as head requirements validator for the military. The remaining players are all political appointees who could be gone in less than a year, depending upon the results of the next presidential election. The idea of striving for the synergy which can exist between intelligence programs and military space is a good one. But the substitution of the Joint Space Management Board for the military's decision-making process poses the threat of an increased bureaucratic nightmare with delay, not streamlining, the result.

Notes

¹"Architect to Reshape Defense Space Policy," *Aviation Week and Space Technology*, February 20, 1995, p. 51.

²Ibid.

³U.S., Congress, House, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1995*, before a subcommittee of the Committee on Appropriations, House of Representatives, 103d Congress, 2nd session, 1994, p. 142.

⁴Air Force Times, p. 3.

⁵Department of Defense Press Advisory, No. 305-P, October 23, 1995.

⁶"Space Architecture," *Aerospace Daily*, November 27, 1995, p. 308.

⁷"Navy's Challenge Athena Project Reactivated," *Inside the Pentagon*, September 7, 1995.

⁸"Top Cover—Origins and Evolution of the Defense Support Program," *Spaceflight*, March 1996, p. 99.

⁹Department of Defense Memorandum, *Charter for Joint Space Management Board*, Office of the Secretary of Defense, 13 December 1995.

¹⁰Ibid.

¹¹The criteria used to determine whether or not the DAB reviewed a military space program were cost and significance. Programs which cost \$300 million in Research, Development, Test and Evaluation (RDT&E) or \$1.8 billion in procurement were classified major acquisitions deserving the attention of the DOD's formal acquisition review process. If a military space program did not exceed these thresholds, but was considered significant, the USD(AT) could declare the program subject to the DAB process.

¹²Defense Systems Management College, *The Program Manager's Notebook: Fact Sheet 1.3—The Defense Acquisition Board Players and Process*, (Ft. Belvoir, VA: Defense Systems Management College, 1993), p. 1.3-1.

¹³Memorandum, Office of the Under Secretary of Defense, Acquisition and Technology, Memorandum for the VCJCS "Next Steps on Space Organization and Management," 2 June 1995.

Notes

¹⁴Department of Defense Memorandum, *Charter for Joint Space Management Board*, Office of the Secretary of Defense, 13 December 1995.

¹⁵*Ibid.*

¹⁶“JSMB Delays Decision on GBS; Requests More Data,” *Inside the Air Force*, December 22, 1995.

¹⁷“Navy to fund Global Broadcast System,” *Aerospace Daily*, 31 January 1995, p. 154.

Chapter 4

Architecture Decisions Outside the Process

The previous chapters have looked at the players and processes created from the differing viewpoints on military space management. Much of the impetus for change came from members of Congress who felt the inefficiencies in management of the various space programs mandated a change within the Defense Department. The military created a new structure for managing space, balancing demands for a space executive against the fears of various bureaucracies that they would have to give up power. There is another strong impact on the management process which deserves mentioning. In addition to being a driving force behind redefining the space management process, Congress also frequently determines the architecture for various satellite programs. The task for one individual, or even several, to plan and manage the development of military space architectures will have to deal with this external influence. Two examples illustrate the kinds of influence which the various space players in the military will have to deal with.

Landsat 7

The first example is the Landsat 7 management nightmare which ended in 1994. Landsat 7 was originally a joint DOD-National Aeronautics and Space Administration (NASA) venture to develop a follow-on multi-spectral imaging satellite. The military had

stated its need for multi-spectral imagery many times since the Gulf War.¹ The war pointed out the need and value of such imagery. Military officials testified before Congress of the need for access to remote sensing systems to solve an unfulfilled need of the Commanders-in-Chief (CINCs). At the same time, NASA was looking to build and operate the next multi-spectral imaging satellite as part of their core mission. Convergence of these requirements in one satellite would save money, increasing the likelihood of program success. But NASA was looking for low-resolution imagery while the military saw Landsat 7 as a host satellite for high-resolution imagery. This disconnect eventually resulted in a failure of the forced merger of the two requirements into the Landsat architecture.

This example illustrates the point that architectures are often decided outside of the DOD. In the case of Landsat 7, Congress was the key driver of the architecture. The primary decisions were made by Congressman George E. Brown, Jr., the powerful Chairman of the House Committee on Science, Space, and Technology. He believed in the value of the civilian Landsat program and introduced legislation in October 1991 to authorize the seventh satellite². Since the NASA budget could not support a new satellite, the Congressman proposed legislation combining the two requirements into one jointly funded and managed architecture. While DOD could possibly carry the full cost, Congressman Brown felt “this could result in a program that yields data which is no longer compatible with public access.”³ In other words, a military-only satellite might turn out to be unavailable to the civilian community. So Congress directed the merger of the two agencies to produce one satellite. The program was eventually dissolved in the spring of 1994 when NASA did not fund processing of imagery from the military high-resolution

sensor. It is of interest to note that the White House Office of Science and Technology Policy made the decision to remove the DOD from the partnership in the architecture.⁴ The military could not act alone to create or end the Landsat architecture.

Weather Satellites

Recent history shows a similar set-up to handle the military weather satellite architecture. The weather support mission for the military's United States Space Command (USSPACECOM) uses two types of weather satellites in a combined architecture. One of the satellite types, the National Oceanic and Atmospheric Administration (NOAA) polar satellite, is procured and managed by a civilian agency. The second satellite type, the Defense Meteorological Support Program (DMSP) satellite, is under the direct management of the military. These two satellite systems fly in similar orbits with roughly similar capabilities. The feasibility of merging the satellites into a common vehicle was studied in response to requests from Congressman George Brown and Senator James Exon. The Vice-President's National Performance Review conducted the study. It concluded with a directive to the Department of Commerce, Department of Defense, and National Aeronautics and Space Administration to develop a detailed implementation plan for converging the satellite programs. (Known as the National Polar-orbiting Operational Environmental Satellite System—NPOESS.) An integrated program office would be responsible for the management, planning, and operations of the system. The director of this office would report to a triagency Executive Committee via the Department of Commerce's Under Secretary for Oceans and Atmosphere. Decisions that affect DOD would be coordinated through the Assistant Secretary of the Air Force for Space for

resolution. Acquisition decisions would be coordinated with the Air Force Service Acquisition Executive.⁵ Like Landsat, the military is unable to speak to Congress with one voice. This paper does not argue against the concept of converging these systems. But the belief that military space can speak to Congress with one voice, a driving requirement behind the formation of the new military space management process, ignores the reality that many military decisions are actually made outside the Department of Defense. Landsat and NPOESS are just two examples. The future holds even more.

The continued downsizing of the military, the shrinking of the industrial base and the emphasis on dual-use technologies will see even more space systems being used which will be outside of the new military space management process. The next architecture to be radically impacted will probably be communications. Communication satellite systems such as Motorola's Iridium or TRW's Odyssey promise to provide telephone-like availability anywhere in the world. In the same way that civilian Global Positioning System receivers showed up in the Gulf War, members of the military will probably be sporting new satellite communication hardware bought and brought from home. The revolution is already beginning. While the Joint Space Management Board decides the evolution of the military's Global Broadcast System, direct broadcast into Bosnia is taking shape. Today's plan is to use the civilian ORION satellite as well as two of the international INTELSAT satellites to beam information directly to the theater. The job of managing the military space effort will be difficult. One can only hope that Congress, when next they ask who's in charge, remembers that the answer is not always the military.

Notes

¹For examples see William Perry, *Report of the Secretary of Defense to the President and Congress*, Washington, D.C.; Government Printing Office, 1993; and U.S., Congress, House, Committee on Appropriations, *Department of Defense Appropriations for 1995*, before a subcommittee on the Committee on Appropriations, House of Representatives, 103d Congress, 2nd sess., 1994, p. 63.

²U.S., Congress, House, Committee on Science, Space, and Technology. *The Landsat Program: Management, Funding, and Policy Decisions*, before the Committee on Science, Space, and Technology, House of Representative, 102d Congress, 1st sess., 1991, p. 190.

³Ibid.

⁴White House, Office of the Press Secretary, "Landsat Remote Sensing Strategy," May 10, 1994.

⁵For a review of the NPOESS, see the following: U.S. Congress, Office of Technology Assessment, "Civilian Satellite Remote Sensing: A Strategic Approach," OTA-ISS-607 (Washington, DC: U.S. Government Printing Office, September 1994); as well as White House, Office of the Assistant to the President for Science and Technology, "Presidential Decision Directives for Convergence and Landsat," May 9, 1994; "Memorandum of Agreement between the DOC, DOD, NASA for the NPOESS" and White House, Office of the Assistant to the President for Science and Technology, "Implementation Plan for a Converged Polar-Orbiting Environmental Satellite System," May 2, 1994.

Chapter 5

Suggested Improvements

The new structure for space management in the military is not very radical. Nor would one expect radical change overnight in an organization as large as the military. Entrenched bureaucracies like the military, or Congress for that matter, have a way of slowly adapting to a changing environment. The pressure of declining defense budgets has not been enough to drive radical change in military space. As a result, the criticism of the findings of the Roles and Mission Commission for only nibbling at the margins, as opposed to substantially changing the military services, applies in the space arena as well. The solutions for improving the efficiency of the process center on past techniques—another deputy under secretary, a two-star general placed in the Air Force chain of command but given the title Space Architect, and a larger board structure to replace a smaller board structure so more players can be involved. Now that the bureaucracy is in place, it will undoubtedly be sometime before it can be changed again. Combined with the tendency of a bureaucracy to perpetuate itself, the recommendations in the last part of this paper tend to restrain themselves to living within this structure.

Congress was most interested in a single voice to speak for space, although no such voice appears in most other functional areas of the military. One possible change would be the creation of a new Major Force Program (MFP). The DOD budget is submitted to

Congress in several formats. One is called Major Force Program, in which funds are categorized into 11 programs, depending on what force they support. To help satisfy the Congressional interest, MFP 12 could be created for space. Currently, the funding requirements for space are divided among the military services. As an example, MILSTAR shows up in the Air Force, Army, and Navy budgets. While the satellite and much of the command and control is in the Air Force budget, key items such as ground terminals are in the budgets of the other services. It is difficult to get the entire MILSTAR picture without detailed review of multiple service budgets. Although it does not address Congressman Murtha's original concern of a single voice for space, it does provide space information in one location. Initiatives which would cut portions of the architecture without corresponding changes in other budget line items would become more apparent. This could lessen the confusion over what is or is not in the military's space planning. This would not solve the problem of budget cuts in architectures such as NPOESS which cut across multiple government agencies. That problem is occurring this year, with Congress cutting funds from the National Oceanic and Atmospheric Administration budget space-based weather support, only to discover they have also impacted the US Navy's budget. However, the concept of a dedicated space budget would at least support unique military architectures. This would gain some increased efficiency above and beyond what can be expected in the current process.

A related idea would be to move the funding submittal out of the service portions of the military budget and into the Department of Defense section. (Within the President's Budget are individual areas for the Army, Navy, Air Force and DOD itself.) Rather than grouping space funding into a functional area (MFP 12), it would be grouped within an

organizational area, the DOD. This was actually attempted a few years back by Congress. All the space programs were struck from the service budget submissions and placed under the DOD budget section. However, for reasons unknown, this attempt by one of the House Committees did not survive the annual conference process on the military budget. Perhaps it was too radical for its time, possibly infringing on the turf of other congressional committees. Again, though, it would help concentrate information and attention on space programs within a more limited area of the budget. Also, the process would support one individual appearing before Congress to defend the space budget. Since the position of Deputy Under Secretary for Space will not be going away for the near term, it would be a useful step to helping him in his job as the Space Acquisition Executive.

One other suggestion is put forward to help the current structure function. The reporting structure needs to be changed for the program managers (PM) who are charged with acquisition of satellites. Within the DOD, these PMs have three levels of reporting when working on acquisition. (Acquisition in the broad sense includes architecture and concept evaluation, actual production of space and ground elements of a system, and modifications to the system, even after launch.) At the top reporting level is the Defense Acquisition Executive (DAE). The current space management structure has pulled the DAE function outside of DOD, into the joint intelligence/military area run through the JSMB. But the program managers do not report to the JSMB, the Deputy Under Secretary for Space, or the Space Architect. Many of the space program managers report no higher than within their service, to their Service Acquisition Executive. But Program Managers and their program offices are critical players. They directly influence the

architectures and performance of their systems. For example, the Defense Satellite Communication System program just contracted to have the remaining satellites (already built and in storage) modified in order to lengthen their orbit life by three years. The Defense Support Program manager was called before Congress to answer questions about the direct influence of the program office on the architecture for the follow on missile warning satellite system. These are just some of the examples of the importance of the PM when it comes to planning future architectures. At a minimum, the Defense Department directives governing acquisition need to be changed to clarify the streamlined decision process required by law. Until then, the day to day workings of the satellite program offices will continue to impact the architecture of military space in ways which will not be apparent to those above them.

Chapter 6

Conclusion

The space management process of the Department of Defense and the military services has changed in the past two years. The changes resulted from a combination of congressional concern, decreasing budgets and a heightened awareness of the value and utility of space to the warfighter. As a result, the new process should be better than the old one, if for no other reason than space is being given more focus and attention. But several other pressures helped create inefficiencies in this new process while trying to improve it.

Congressional direction for a single space executive engineered a solution without grasping the larger problem of reorganization for the military as a whole. It treated space as a separate entity rather than part of a bigger picture—the proper organization and roles within the military. A space czar was not a feasible solution as long as the military was organized along service lines, with each service responsible for equipping its own force. ‘It’s hard to be a czar when you’re not in charge,’ the quote from the head of the Intelligence Commission referenced earlier in this paper spoke to the problem. Unfortunately, the idea of a czar is in vogue nowadays. But the czar for Ballistic Missile Defense, Lieutenant General O’Neill, has not been very successful in cementing the service views on missile defense into one architecture. Baseball has been looking for a czar to

head up the sport for the last two years, but no one wants the job unless the power to control goes with it. The drug war has embraced a National Drug Czar in the past month. It is not surprising to see a space czar pushed for by Congress, but it does not appear to be the final answer.

Space has become a valuable force enhancement tool for each service. Unfortunately, this meant none of the services were willing to give up their involvement in the process for fear of being neglected in this increasingly lucrative field. Space was becoming the solution to a broad range of problems, from detecting Scud missile launches and warning troops in the impact area to transmitting large amounts of data to the Navy fleets far from home. The Revolution in Military Affairs emphasized the ability in the near future of "if you see it, it's as good as dead," an incredibly valuable integrated system for each service. This quandary limited the tools available to the Roles and Missions Commission. Stuck with fighting the existing military bureaucracies on the one hand, and having to make a change to satisfy the congressional direction, it is not surprising the final solutions were not very radical. The restructuring of space management ended up adding more players to the process. A Deputy Under Secretary for Space, a Space Architect, and a Joint Space Management Board, while serving to focus attention on military space, also ended up creating additional layers of bureaucracy for space programs to navigate.

Finally, space is an area reaching across the boundaries between government agencies. At any one time you might find NASA, Department of Transportation, Department of Commerce, the military, the intelligence community or some other agency directly impacting the military space architecture. The current trend to change control of the military navigation and timing satellite system (Global Positioning System) and possibly

distribute across other government agencies is one example of the shape of future military space efforts. The current military process, driven mainly by Congress' desire to focus the management effort in one place, was not structured with this joint coordination in mind. For its part, Congress also needs to recognize the impact they have when they legislate military involvement in space architectures outside of the armed services.

In the end, the process of changing a bureaucracy like the military happens slowly. Radical change is usually ignored in favor of smaller changes to the status quo. Bureaucracies are happiest with management structures which contain familiar elements. The new space management process contains an Under Secretary, a two-star general in charge of architecture and a board to make decisions, all comfortable elements from the organizational toolkit. The new DOD space management process will serve the purpose of increasing efficiency by focusing attention on decision-making. But the longer term impact may not be large. The solution to the demand of Congress for change was to add more players, resulting in more coordination, not more control.

Appendix A

Joint Space Management Board Membership

- Under Secretary of Defense for Acquisition and Technology (co-chair)
- Deputy Director of Central Intelligence (co-chair)
- Vice-Chairman, Joint Chiefs of Staff
- Executive Director, Intelligence Community Affairs
- Under Secretary of Defense (Comptroller)
- All four service Vice Chiefs of Staff
- All three service acquisition executives
- Assistant Secretary of Defense for C4I
- Director, Program Analysis and Evaluation
- Deputy Under Secretary of Defense for Space
- Commander-in-Chief of the U.S. Space Command
- Executive Director, Central Intelligence Agency
- Deputy Director for Science and Technology, CIA
- Director, National Security Agency
- Director, National Reconnaissance Office
- Director, Defense Intelligence Agency
- Director, National Imagery and Mapping Agency
- Director, Bureau of Intelligence and Research, Department of State
- DOD Space Architect (ex-officio)

Appendix B

Defense Acquisition Board Membership

- The Under Secretary of Defense for Acquisition and Technology
- The Deputy USD(AT)
- Vice Chairman, Joint Chiefs of Staff
- DOD Comptroller
- Director of Defense Research and Engineering
- Assistant Secretary of Defense, Program Analysis and Evaluation
- Director, Operational Test and Evaluation
- Air Force, Army, Navy Service Acquisition Executives (SAE)
- DAB Committee Chairs (for military space this is the Director)
- Strategic and Space Systems

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