

## **VI. Organizing and Managing for the Future**

National security space organization and management today fail to reflect the growing importance of space to U.S. interests. The Defense Science Board Task Force on Space Superiority observed that “the use of space has become such a dominant factor in the outcome of future military conflict and in the protection of vital national security interests that it should take on the priority...similar to that which existed for Strategic Forces in the 1960s through 1980s.” There is a need for greater emphasis on space-related matters, starting at the highest levels of government.

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### **A. Criteria**

In light of the vital place space has in the spectrum of national security interests, a successful approach to organization and management for the future must:

- Provide for national-level guidance that establishes space activity as a fundamental national interest of the United States.
- Create a process to ensure that national-level policy guidance is carried out among and within the relevant agencies and departments.
- Ensure the government’s ability to participate effectively in shaping the domestic and international rules and policies that will govern space.
- Create conditions that encourage the Department of Defense to develop and deploy systems in space to deter attack on and, if deterrence should fail, to defend U.S. interests on earth and in space.
- Create conditions that encourage the Intelligence Community to develop revolutionary methods for collecting intelligence from space.
- Provide methods for resolving the inevitable issues between the defense and intelligence sectors on the priority, funding and control of space programs.

- Account for the increasingly important role played by the commercial and civil space sectors in the nation's domestic and global economic and national security affairs.
- Develop a military and civilian cadre of space professionals within DoD, the Intelligence Community and throughout government more generally.
- Provide an organizational and management structure that permits officials to be agile in addressing the opportunities, risks and threats that inevitably will arise.
- Ensure that DoD and the Intelligence Community are full participants in preparing government positions for international negotiations that may affect U.S. space activities.

## **B. Assessment of Congressionally Directed Approaches**

The Commission was specifically directed by Congress to assess four organizational approaches the Department of Defense might implement for organizing and managing national security space activities. Each is discussed below.

### **1. A New Military Department for Space**

A department is the traditional approach to creating a military organization with responsibility to organize, train and equip forces for operations in a defined medium of activity. Hence, the U.S. today has military departments with the primary missions of providing forces for conducting operations in the air, on land and at sea. The use of space in defense of U.S. interests may require the creation of a military department for space at some future date. A Space Department would provide strong advocacy for space and a single organization with the primary mission of providing forces for conducting both military and intelligence space operations. However, the Commission believes that the disadvantages of creating a department today outweigh the advantages for a number of reasons, including that there is not yet a critical mass of qualified personnel, budget, requirements or missions sufficient to establish a new department. Meanwhile, near- and mid-term organizational adjustments should be fashioned so as to not preclude eventual evolution toward a Space Department if that proves desirable.

## **2. Space Corps**

A Space Corps within the Department of the Air Force may be an appropriate model in its own right or a useful way station in the evolution toward a Space Department. One model is the Army Air Force's relationship to the Army during World War II. Existing Air Force space forces, facilities, units and personnel, and military space missions could be transferred to a Corps. A Space Corps could have authority for acquisition and operation of space systems, perhaps to include both DoD and Intelligence Community systems, while leveraging existing Air Force logistics and support functions. Alternative approaches might be modeled after the relationship of the Marine Corps to the Department of the Navy. A Space Corps would have many of the same advantages and disadvantages of a Space Department. However, unlike a Space Department, a Corps within the Air Force would not eliminate the competition for resources between air and space platforms that exists within the Air Force today. Nor would it by itself alleviate the concerns of other Services and agencies over Air Force space resource allocations.

## **3. Assistant Secretary of Defense for Space**

An Assistant Secretary of Defense for Space reporting to the Secretary of Defense could be created with primary responsibility for space policy. The Commission believes that this position likely would not have sufficient influence over the evolution of U.S. national security space capabilities. Oversight of space policy needs to be coordinated with acquisition and technology development and with command and control, intelligence, and information operations in support of military operations. These activities are now highly integrated. The Commission believes that singling out policy for special treatment by an Assistant Secretary is not likely to result in greater or more effective focus on space within DoD.

An alternative is to position an Assistant Secretary of Defense for Space within the office of the Under Secretary of Defense for Policy and to broaden the scope of responsibilities to include intelligence and information operations. Under this arrangement, the Assistant Secretary for Space would focus on establishing policy guidance for the Department on space, intelligence and information operations, coordinating that policy with the Intelligence Community and acting as DoD's representative for space-related matters in interagency and international fora. This approach would be effective only if a companion office with responsibility for

oversight of acquisition programs for space, intelligence, information and command, control and communication is assigned to the Under Secretary of Defense for Acquisition, Technology and Logistics. This approach may be better associated with the creation of a Space Department or Space Corps, either of which would presuppose greater focus within DoD on space capabilities. The Commission recommends an alternative arrangement, an Under Secretary of Defense for Space, Intelligence and Information, as described later in this chapter.

#### **4. Major Force Program**

A Major Force Program is a Department of Defense mechanism to aggregate related budget items into a single program in order to track program resources independent of the appropriation process. As a management tool, this could be useful in helping make the various elements of the Department's space program more visible and in providing accountability for space funding decisions.

#### **C. Recommendations: A New Approach to Space Organization and Management**

The Congress also directed the Commission to consider any other changes to national security space organization and management. The Commission believes that a new and more comprehensive approach is needed to further the nation's security interests in space.

Following are the Commission's unanimous recommendations:

##### **1. Presidential Leadership**

*The United States has a vital national interest in space. National security space should be high among the nation's priorities. It deserves the attention of the national leadership, from the President down.*

*The President should consider establishing space as a national security priority.*

Only the President can impress upon the members of the Cabinet, particularly the Secretary of Defense and the Director of Central Intelligence, the priority to be placed on the success of the national space

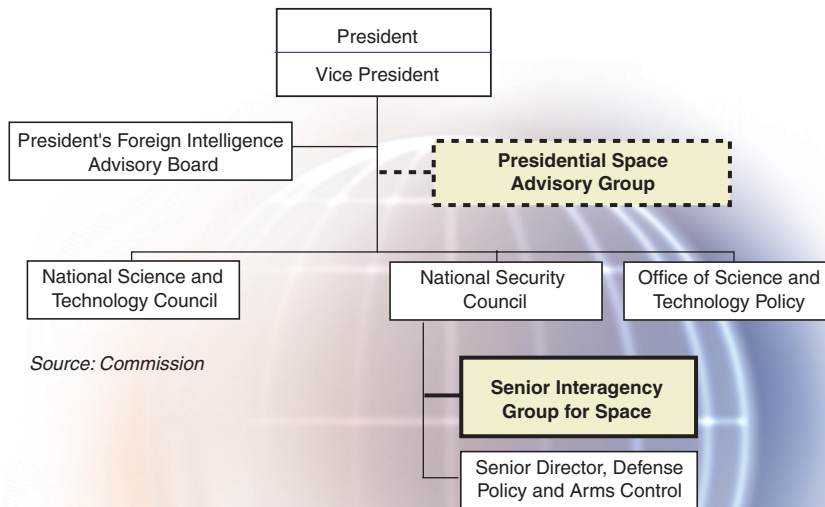
program. To establish a priority on space, the President could direct a review of national space policy. That policy should give the departments and agencies guidance to reflect the national space priorities in building their budgets and programs. The National Security Council can assist the President with measures to monitor the progress of the national space program toward defined goals. This information is useful to the President and Cabinet officials in holding their departments and agencies accountable for achieving the national goals.

## 2. Presidential Space Advisory Group

*The President might find it useful to have access to high-level advice in developing a long-term strategy for sustaining the nation's role as the leading space-faring nation.*

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

A top-level Presidential space advisory group could provide independent advice on new concepts for employing space capabilities for intelligence collection and operations, military operations or commercial advantage (Figure 29). It should be unconstrained in scope and provide



**Figure 29: A New Organizational Approach for Space in the Executive Office of the President**

recommendations that enable the nation to capitalize on its investment in people, technology, infrastructure and capabilities in all space sectors, to assure that the U.S. sustains its leadership role. The group should seek to identify new technical opportunities that could advance U.S. interests in space. The group should be chartered with a mandate to expire after three years.

### **3. Senior Interagency Group for Space**

*The current interagency process is inadequate to address the number, range and complexity of today's space issues, which are expected to increase over time. A standing interagency coordination process is needed to focus on policy formulation and coordination of space activities pertinent to national security and to assure that representation in domestic and international fora effectively reflects U.S. national security and other space interests.*

***The President should direct that a Senior Interagency Group for Space be established and staffed within the National Security Council structure.***

The core membership for a Senior Interagency Group (SIG) for Space should ensure that senior-level attention is directed to specific national security space issues. However, the membership could be expanded to include officials from other relevant departments and agencies as issues warrant.

The central objectives of the interagency process for space should be to:

- Leverage the collective investments in the commercial, civil, defense and intelligence sectors to advance U.S. capabilities in each.
- Advance initiatives in domestic and international fora that preserve and enhance U.S. use of and access to space.
- Reduce existing impediments to the use of space for national security purposes.

The SIG would oversee implementation of national space policy, coordinate national security space matters government-wide and frame key issues for resolution by the President. The SIG should focus on the most critical national security space issues, including those that span the civil and commercial space sectors. Its agenda might include:

- Space control.
- Military missions in space.
- Space transportation.
- Space utilities, including GPS, weather, rescue, space surveillance, spectrum and communications.
- Earth remote sensing.
- Domestic, allied and international agreement, treaty and regulatory regimes.

The agenda should be shaped to produce a deliberate, coherent approach to the implementation of space policy. To develop the group's agenda and to coordinate national security space matters at the working level, the Senior Interagency Group would need dedicated staff support, provided through the National Security Council staff, with experience across the four space sectors.

#### **4. SecDef/DCI Relationship**

*The issues relating to space between the Department of Defense and the Intelligence Community are sufficiently numerous and complex that their successful resolution and implementation require a close, continuing and effective relationship between the Secretary of Defense and the Director of Central Intelligence.*

***The Secretary of Defense and the Director of Central Intelligence should meet regularly to address national security space policy, objectives and issues.***

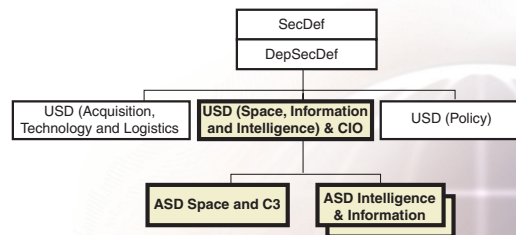
#### **5. Under Secretary of Defense for Space, Intelligence and Information**

*Until space organizations have more fully evolved, the Office of the Secretary of Defense would benefit from having a senior-level official with sufficient standing to serve as the advocate for space within the Department. The Secretary of Defense would assign this official*

*responsibility to oversee the Department's research and development, acquisition, launch and operation of its space, intelligence and information assets; coordinate the military intelligence activities within the Department; and work with the Intelligence Community on long-range intelligence requirements for national security.*

***An Under Secretary of Defense for Space, Intelligence and Information should be established.***

An Under Secretary of Defense for Space, Intelligence and Information (USD (SII)) would provide policy, guidance and oversight for space in a single organization within the Office of the Secretary of Defense (Figure 30). The USD (SII) would help ensure that space-related issues are addressed in the Department at an appropriately influential level. This is particularly important in the near term to help advance the development of new space missions and associated forces.



Source: Commission

**Figure 30: A New Organizational Approach for Space in the Office of the Secretary of Defense**

The Under Secretary would absorb the responsibilities of the current ASD (C3I) and would serve as the senior OSD advocate for space. This might require a change in the legislation establishing the office of the ASD (C3I). The USD (SII) would provide policy recommendations to the Secretary of Defense for the future course and direction for space activity within the Department of Defense. An Under Secretary would have the rank to work effectively with the military Services and with the CINCs and Joint Staff. This organization would also provide more senior-level attention to intelligence and information operations, particularly as they relate to establishing longer-term space-related policies. This can be done by assigning space and C3 acquisition-related issues to one Assistant Secretary of Defense. A second Assistant Secretary could be assigned responsibility for intelligence and information. The Under Secretary would represent the Department within the interagency process on all but matters of high national policy, up to the level of the Deputies' committees.



The Under Secretary, on behalf of the Secretary of Defense, would be assigned responsibility to:

- Establish space policy in coordination with the Under Secretary of Defense for Policy and oversee space system acquisition in coordination with the Under Secretary of Defense for Acquisition, Technology and Logistics.
- Implement policy to enable deployment and employment of space assets to conduct new military missions in the areas of space protection and projecting force in and from space.
- Oversee research and development, acquisition, launch and operation of space, intelligence and information assets and ensure that they are considered in an end-to-end fashion.
- On behalf of the Secretary of Defense, coordinate military intelligence activities within the Department and work with the Intelligence Community on long-range intelligence requirements for national security.
- Coordinate DoD space activities with the commercial and civil sectors at home and abroad.
- Develop the still nascent field of information assurance and information operations by defining the mission area, coordinating efforts within the Department and coordinating departmental plans with those in the broader government community.
- Fulfill the role of Chief Information Officer as provided in Title 44 U.S.C.
- Oversee the Department's information architecture.

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

*The Commander in Chief, U.S. Space Command should continue to concentrate on space as it relates to warfare in the mediums of air, land and sea, as well as space. His primary role is to conduct space operations and provide space-related services, to include computer network defense/*

*attack missions in support of the operations of the other CINCs, and national missile defense. This broad and varied set of responsibilities as CINCSPACE will leave less time for his other assigned duties.*

***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.***

***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.***

In today's arrangement, CINCSPACE also serves as CINCNORAD and Commander of Air Force Space Command. Current practice assigns a rated pilot as CINCNORAD, though the actual requirement is that the NORAD Director of Operations, a J-3 position, be flight rated. As a result, only flight-rated U.S. Air Force officers serve as CINCSPACE and CINCNORAD.

To let the best-qualified officer from any Service fill the position of CINCSPACE, the Department should end the practice of assigning only flight-rated officers as CINCNORAD and end the practice of assigning CINCSPACE to serve also as Commander, Air Force Space Command. This would help ensure that an officer from any Service with an understanding of combat and space could be assigned as CINCSPACE, and one with the required in-depth knowledge of space acquisition and operations could be made Commander, Air Force Space Command. The Commission believes that the position of CINCSPACE should remain nominative and need not be rotated among the military Services.

Freed of the role as Commander, Air Force Space Command and the associated responsibilities devoted to the needs of a single Service, CINCSPACE would be better positioned to play a significant role in developing long-term requirements for space systems for the Department as a whole, which are increasingly "joint."

There is no need to establish a specific set of experience requirements for CINCSPACE. As space education, career development and training in the Department of Defense are enriched, a cadre of space professionals will

develop. A larger pool of senior officers will emerge with knowledge of space and experience in combat operations, providing a rich pool of leadership and operational experience from which to draw the country's most senior space commanders, among them CINCSPACE.

The Commission is also concerned about the short tenure among individuals serving as CINCSPACE and in other senior space positions, particularly as many of these individuals do not, today, come to the jobs with extensive space experience. While national security space missions evolve and mature, it would be useful for an individual to remain in this position for a period beyond the typical two-year commitment. With a longer time horizon, CINCSPACE could establish appropriate goals and objectives for maturing space missions and remain long enough to shape their development.

## **7. Military Services**

*The Department of Defense requires space systems that can be employed in independent operations or in support of air, land and sea forces to deter and defend against hostile actions directed at the interests of the United States. In the mid term, a Space Corps within the Air Force may be appropriate to meet this requirement; in the longer term, it may be met by a military department for space. In the nearer term, a realigned, rechartered Air Force is best suited to organize, train and equip space forces.*

***The Air Force should realign headquarters and field commands to more effectively organize, train and equip for prompt and sustained space operations. Air Force Space Command (AFSPC) should be assigned 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.***

***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.***

To carry out this realignment, Space and Missile Systems Center, now under the Air Force Materiel Command, would be reassigned to Air Force Space Command. The Commander, AFSPC would have authority to program funds and direct research and development programs within the Air Force laboratory system (Figure 31).

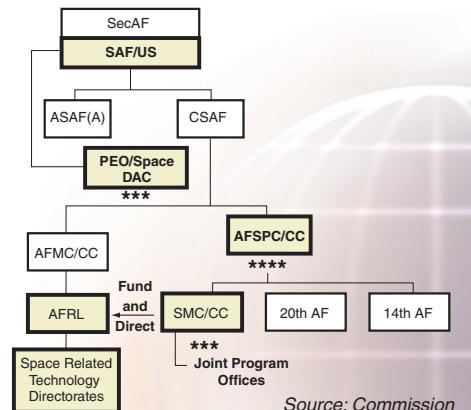


Figure 31: A New Organizational Approach for Space in the Air Force

Consolidating space functions into a single organization would create a strong center of advocacy for space and an environment in which to develop a cadre of space professionals. This cadre should be charged with developing doctrine, concepts of operations and new systems to achieve national space goals and objectives. The arrangement would increase the role of the uniformed military in research, development and acquisition of space systems to better meet operational requirements.

Air Force Space Command would become the center for developing a space cadre and advocating education and training programs for space professionals. The commander should have responsibility for managing all aspects of the space career field, to include developing new space career paths and defining and implementing selection and assignment criteria.

## 8. Aligning Air Force and NRO Space Programs

*The Department of Defense and the Intelligence Community would benefit from the appointment of a single official within the Air Force with authority for the acquisition of space systems for the Air Force and the NRO based on the “best practices” of each organization.*

***Assign the Under Secretary of the Air Force as the Director of the National Reconnaissance Office.  
Designate the Under Secretary as the Air Force Acquisition Executive for Space.***

This appointment would require a decision by the Secretary of Defense with the concurrence of the Director of Central Intelligence. It would serve several purposes. It would create a senior-level advocate for space within the Air Force. It would give a single person authority to acquire space systems for the Air Force and the NRO. Space would be strongly represented in the planning, programming and budgeting process and in the defense acquisition process. The Under Secretary would oversee space matters related to acquisition, financial management, manpower and infrastructure.

This would better align Service and NRO space acquisition organizations and would provide an opportunity to align space acquisition policies with the “best practices” of each. It would also help the Under Secretary in his current role in the Air Force resource process to ensure balance between air and space programs within the Air Force.

Designating the Air Force Under Secretary/DNRO as the acquisition executive for space would require a change in DoD directives, and there might be a need for Congressional action to amend Title 10 U.S.C. Currently, both the directives and the law imply that a Service may have only a single acquisition executive.

Additional organizational changes would be required in the Air Force as well. The position of the Assistant Secretary of the Air Force for Space would be eliminated. The staff functions performed by the Deputy Assistant Secretary of the Air Force for Space Plans and Policy would be transferred to the Under Secretary of the Air Force. To support the realignment of Air Force space acquisition responsibilities, the Program Executive Officer for Space, the Designated Acquisition Commander and the Director of Space and Nuclear Deterrence would also be re-assigned directly to the Under Secretary of the Air Force to provide program oversight and staff support for Air Force space acquisition programs.

In this new position, the Under Secretary/DNRO, in consultation with the Secretary of Defense and DCI, would select and oversee the National Security Space Architect. The Architect would be responsible for end-to-end architectures for all national security space systems, including user terminals, which would continue to be acquired within the individual Services. This places the architecture function within the resource processes of both the Air Force and the NRO, which should make it more effective. The National Security Space Architect would also be responsible for ensuring that NRO and Air Force program funding for space is consistent with policy, planning guidance and architectural decisions.

A flag officer of any Service or a senior civilian could fill the position of architect. The office would remain jointly staffed by the Intelligence Community and the military Services. Currently the NSSA has five joint billets—one Navy, two Army and two Air Force. The Commission recommends that each NSSA military position be designated as a “joint position” to encourage further participation by all the Services in this activity.

***Meeting Army and Navy Requirements***

The changes described, to realign Air Force space activities and align Air Force/NRO space activities, would elevate space within DoD and better position the Air Force to provide for the Department’s needs for space doctrine and programs. An important Air Force responsibility is to ensure that the requirements and equities of the other military Services for space systems and capabilities are met as well. This would be accomplished in a number of ways. The Army and Navy would provide appropriately qualified officers to joint commands and agencies, including the NRO, to ensure that these agencies and commands have staff qualified to understand and meet joint requirements for space systems and products. These would include U.S. Space Command and the office of the National Security Space Architect.

The practice of acquiring most space systems through joint program offices would be continued and encouraged. The Army and Navy would need to develop, deploy, fund and, where appropriate, operate space systems to meet unique requirements. This would require the Army and Navy to maintain a cadre of space-qualified officers to represent their interests in space requirements, acquisition and operations.

***Implementation***

There are several possible ways to provide formal authorities to the Air Force for this new organization. One is to give the Air Force statutory responsibility under Title 10 U.S.C. to “organize, train and equip” for space, which the Commission recommends. Currently, the Air Force “shall be organized, trained, and equipped primarily for prompt and sustained offensive and defensive air operations.” This could be changed to “air and space operations.” It would establish a Congressionally mandated obligation for the Air Force to plan, program and budget for space missions. This approach should motivate the Air Force to give space activities higher priority.

The Commission recommends the Secretary of Defense designate the Air Force formally as the Executive Agent for Space, with department-wide responsibility for planning, programming and acquisition of space systems.

In this role, the Air Force would be responsible for developing, defending and submitting a joint “Space Program Plan” to the Office of the Secretary of Defense. The Army and Navy would continue to develop and fund space programs that meet their unique requirements and would submit them to the Executive Agent for inclusion in the joint space program. The Services would continue to acquire Service-specific programs but, for these, would report through the Air Force Space Acquisition Executive. The Services would continue to develop requirements through the Joint Requirements Oversight Council process, but under this arrangement the Executive Agent would harmonize the requirements with plans, programs and budgets before submission. The Services would retain responsibility for doctrine, strategy, education, training and operations, but in coordination with the Executive Agent.

The recommended realignment of space activities within the Air Force would create a single chain of authority from the Under Secretary of the Air Force through both the Air Force space organizations and the NRO. It would give the Air Force a clear opportunity to create a space-oriented culture comprised of military professionals who could directly influence the development of systems and doctrine for use in space operations.

The nation’s vital interests depend increasingly on the capability of its military professionals to develop, acquire and operate systems capable of sustained space combat operations. The proliferation of technology and the ease with which hostile entities can gain access to space increase the need for a concentrated effort to deter and defend against such attacks.

Such efforts are not being pursued with the vision and attention needed. U.S. interests in space may well ultimately call for the creation of a Space Corps or a Space Department to organize, train and equip forces for sustained operations in space. For that reason, assignment of Title 10 responsibility to the Air Force by the Congress and its designation as Executive Agent for Space within the Department of Defense is recommended to lay the foundation for such future steps.

### ***Future Steps***

*The Commission believes that once the realignment in the Air Force is complete, a logical step toward a Space Department could be to transition from the new Air Force Space Command to a Space Corps within the Air Force.*

This would be, in essence, an evolution much like that of the Army's air forces from the Army Air Corps, into the Army Air Forces and eventually into the Department of the Air Force. The timetable, which is not possible to predict, would be dictated by circumstances over the next five to ten years.

The likelihood of independent operations in space will grow as ballistic missile defense, space control and information operations are integrated into the contingency plans of theater commanders. Much as theater commanders now employ air, land or sea forces, space forces can either perform independent operations unique to their medium or capabilities or be used as part of a joint force. A Space Corps could develop forces, doctrine and concepts of operation for space systems for use as a functional component of a theater commander's order of battle.

The Commander, Air Force Space Command would serve as head of a Space Corps and could join the deliberations of the Joint Chiefs of Staff when space-related issues are on the agenda. The Corps would have responsibility for planning, programming and budgeting for space systems. It could be possible, however, for DoD to transition directly to a Space Department if future conditions support that step more quickly than appears likely from the Commission's vantage point today.

*Finally, an evolution to a Space Corps could involve integration of the Air Force and NRO acquisition and operations activities for space systems.*

This integration could be achieved either by merging the two organizations in one step or through a series of steps in an evolution to a Space Corps or a Space Department. The Commission believes that a series of steps will likely prove to be the most appropriate path. Toward that end, when practicable after the realignment in the Air Force, the Commission recommends:

- Acquisition of the NRO's next generation communications relay satellite be transferred to the Air Force.
- Responsibility for operation of the NRO's satellites be transferred by the Secretary of Defense and the Director of Central Intelligence to the realigned Air Force.



- The NRO and Air Force activities be fully merged, creating a single organization responsible for the development, acquisition and operation of the nation's space-based defense and intelligence systems.
- For programs transferred from the NRO, program execution would continue with existing acquisition authorities within the DoD structure; guidance for requirements, priorities and resources would continue to be provided by the Director of Central Intelligence. These programs would continue to be funded in the National Reconnaissance Program as part of the National Foreign Intelligence Program.

## **9. Innovative Research and Development**

*The Intelligence Community has a need for revolutionary methods, including but not limited to space systems, for collecting intelligence.*

***The Secretary of Defense and the Director of Central Intelligence should direct the creation of a research, development and demonstration organization to focus on this requirement.***

Intelligence collection from space continues to be made increasingly difficult by greater target complexity, greater capabilities to deceive and deny U.S. space-based assets and greater demands on the system. The Intelligence Community is being asked to provide a larger volume of information and more particular types of products, especially with respect to scientific and technical intelligence.

Space systems now deployed and in development by the NRO require a considerable period of time to develop, are expensive to acquire and to place on orbit, have low operation and maintenance costs and have lifetimes stretching to nearly a decade. Many users in the Intelligence Community and the Department of Defense now rely on high quality intelligence products available on call. As a result, the NRO's requirements and acquisition processes favor conservative technical and system solutions to intelligence and military requirements. Combined with the reality of budget constraints, the result is that relatively less emphasis is placed on research, development and demonstration of new concepts and capabilities to satisfy critical intelligence needs.

A Strategic Reconnaissance Office would focus on the unique, one- or two-of-a-kind systems needed to address an urgent national requirement. It would retain control over the systems through acquisition and operational deployment. It should be operated as a joint venture between the Secretary of Defense and the Director of Central Intelligence. It should be relatively small in size and staffed by highly motivated people with the means to move a project rapidly from concept to deployed system. The budget would be contained within the NFIP, but outside the NRP. In developing systems, the office would not be limited to space solutions, but rather it could consider tradeoffs among air, space, surface and subsurface alternatives.

*Competitive centers of innovation that actively pursue space-related research, development and demonstration programs are desirable.*

***The Secretary of Defense should direct the Defense Advanced Research Projects Agency and the Services' laboratories to undertake development and demonstration of innovative space technologies and systems for dedicated military missions.***

DARPA should fund exploratory research and development and demonstration projects that exploit existing technology or apply new technology to existing or emerging requirements. These could be conducted on a classified or unclassified basis, depending on the sensitivity of the technology, mission or operational concept.

The Departments of the Army and Navy should increase and fortify their investments in and execution of research and development programs with emphasis on the uses of space to carry out their respective missions. This would not only ensure multiple sources of innovation, but also would help the Army and Navy retain a space-qualified cadre of engineers and scientists who could represent the individual Services' interests in space requirements, acquisition and operations.

## **10. Budgeting for Space**

*Better visibility into the level and distribution of fiscal and personnel resources would improve management and oversight of space programs.*

***The Secretary of Defense should establish a Major Force Program for Space.***

A Major Force Program for Space should be managed in a decentralized fashion similar to Major Force Programs 1 through 10. The MFP would contain the same program elements as the previously recommended Space Program Plan, which is under the direction of the Air Force as Executive Agent for Space.

If properly highlighted, the current DoD program, budget and accounting information system is adequate to identify and track programs of management interest. A Major Force Program for Space would provide insight into the management of space programs without unnecessarily restricting the flexibility of the Secretary of Defense, the Director of Central Intelligence or the military departments.

### ***Resources for Space Capabilities***

Looking to the future, the Department of Defense will undertake new responsibilities in space, including deterrence and defense of space-based assets as well as other defense and power projection missions in and from space. These new missions will require development of new systems and capabilities.

Space capabilities are not funded at a level commensurate with their relative importance. Nor is there a plan in place to build up to the investments needed to modernize existing systems and procure new capabilities. Notionally, investments devoted to the buildup of strategic forces in the 1960s averaged some ten percent of the Department's budget annually. Appropriate investments in space-based capabilities would enable the Department to pursue:

- Improved space situational awareness and attack warning capabilities.
- Enhanced protection/defensive measures, prevention and negation systems and rapid long-range power projection capabilities.
- Modernized launch capabilities.
- A more robust science and technology program for developing and deploying space-based radar, space-based laser, hyper-spectral sensors and reusable launch vehicle technology.

Providing the Department of Defense and the Intelligence Community with additional resources to accomplish these new missions should be considered as part of U.S. national space policy.

## **11. Congress**

Congress is concerned about the organization and management of national security space activities. It will play a key role in reviewing and coordinating many of the recommendations in this report and in helping promote a greater public understanding of the importance of national security space.

This report offers suggestions for organizational changes in the executive branch that are intended to bring a more focused, well-directed approach to the conduct of national security space activities, based on a clear national space policy directed by the President. These organizational changes in the executive branch suggest changes in the Congressional committee and subcommittee structure to align the jurisdictions of these committees as much as possible with the executive branch, leading to a more streamlined process. Congress might usefully consider encouraging greater “crossover” membership among all of the space-related committees to increase legislative coordination among defense and intelligence space programs.

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The Commission believes that its recommendations, taken as a whole, will enable the U.S. to sustain its position as the world’s leading space-faring nation. Presidential leadership and guidance, coupled with a more effective interagency process and especially with improved coordination between the Department of Defense and the Intelligence Community, are essential if the nation is to promote and protect its interests in space.