

MEMORANDUM FOR THE PRESIDENT

March 10, 2009

SUBJECT: America's Leadership in Space

FROM: Committee for U. S. Space Leadership

The nation is facing an unprecedented set of domestic and international challenges – the economic crisis, growing unemployment, spiraling health care costs, foreign energy dependency, a declining industrial base, ongoing conflicts around the globe, and environmental change. Your administration is taking firm steps to address these problems through an ambitious agenda for change, stressing bold, bipartisan action. With all these daunting challenges, one might question why space should be one of your higher priorities.

We as a group of concerned citizens and space professionals believe the nation's space enterprise is a critical strategic foundation of our country's economic well-being and technological vitality, as well as our overall national power and international standing. While the United States still leads the world in space, there are numerous problems that threaten our continued leadership. We face near-term mission gaps in important space capabilities; the U.S. space industry and workforce is losing its competitive edge; our engagement and influence in international space activities has declined; and there is widespread program overreach – that is, recurring cost overruns and delays, and more government space programs than the federal budget can currently support. In many respects, the nation's civil, commercial, defense, and intelligence space sectors are in worse condition today than they were a decade or more ago.

Since mankind's first flights in space some fifty years ago, the United States has developed world leading space capabilities that are vitally important to our domestic, national security and international interests. Being the recognized leader in space has provided direct, tangible benefits to the nation, including a significant share of a \$250+B annual global space market; an innovative, highly skilled workforce and industry; a broad array of advanced technologies; expanded knowledge about the Earth, its environment, the solar system and the universe; continuous awareness of world events and threats; monitoring compliance with international treaties and agreements and the ability to rapidly and effectively support our military forces anywhere on the globe. Space touches and improves the lives of Americans on a daily basis.

The nation's space enterprise is a key contributor to and enabler of your agenda for addressing global change, creating high-quality jobs, investing in our technology future, protecting the nation and engaging with the international community. Maintaining America's position as the world's space leader is critically important to advancing our nation's interests and achieving your priorities. Failure to address our nation's problems in space will have grave consequences for the U.S. economy, security, and public well-being.

DISCUSSION

The U.S. space program was fundamentally defined and driven by the Cold War competition with the Soviet Union, and was guided by direct Presidential involvement. The nation's efforts were organized around separate civil, defense, intelligence, and commercial sectors with distinct missions, capabilities, and dependencies. The nation made massive investments in education, research, industry, facilities, and programs which rapidly established U.S. leadership in space. Since the beginning of the space age, each President has had a direct role in defining our nation's space policies and taken together, these policies have been remarkably consistent in terms of their broad goals. These include strengthening U.S. space leadership, ensuring our national security, promoting economic competitiveness, expanding the science and technology base, and encouraging international cooperation. While national space policy has been consistent, its implementation has been inconsistent and often fallen short of stated objectives.

Since the end of the Cold War, space capabilities have become more integrated in a vast array of daily applications and uses. Today space is a critical element of our infrastructures for transportation, banking, finance, telecommunications, public utilities, homeland security and even agriculture. Capabilities such as GPS have fundamentally enabled the information and geospatial revolutions around the world. Defense and intelligence space capabilities have helped transform our military from the massed forces of the Cold War to rapid, agile forces able to operate with speed and precision anywhere on the globe. The civil space program under NASA is completing the International Space Station, conducting robotic missions to other planets, and beginning the next great quest in human space exploration. The U.S. space industry is a critical engine of technology advancement, high quality jobs, and positive balance of trade, which create new business and investment opportunities that promote prosperity and quality of life.

While space has transformed society in the information age, we are living off the dividends of past programs and investments. There are growing indications of problems and decline across the entire national space enterprise. There are wide gulfs between our stated space policies and the funding and execution of programs and activities in all sectors. Significant launch and on-orbit failures, including the Space Shuttle *Columbia* accident, all point to the deterioration of expertise and experience across government and industry. The consolidation of the U.S. aerospace industry and growing foreign competition has reduced our industry's diversity and market share. Further, restrictive export control policies have significantly reduced U.S. space industry competitiveness in global markets; in fact other countries now boast of "ITAR Free" space trade. The federal government spends in excess of \$60B each year in space, but loss of experience, poor management, and budget instability have resulted in pervasive cost and schedule problems in many government space programs. There is a

growing mismatch between programs underway and the budgets needed for their completion; this will force hard choices between increasing funding or canceling programs. Further, there is increased fragmentation and unclear authorities within the separate government sectors, as well as bureaucratic infighting and lack of coordination among the space sectors. These problems will result in loss of critical space capabilities in the coming years, notably dependence on foreign partners for human access to the International Space Station after the Shuttle's retirement and gaps in vital on-orbit defense and intelligence space capabilities, that will impact our ability to monitor and respond to crises.

There have been a number of Executive and Legislative Branch reviews of the state of the nation's space enterprise over the past two decades; all have reached similar conclusions. Space is vitally important to the nation's security and economic well-being and our dependence on space is growing. The studies note we have experienced declines in the industrial base and workforce, abandoned proven practices in development of space capabilities, failed to accurately estimate and budget for the cost of new systems, and not maintained stability in programs. The most fundamental conclusion has been that leadership and priority at the national level are essential. Although efforts have been made to implement corrective steps in each of the sectors, many recommendations have not been acted on and where they have, there has been insufficient follow-through, all of which has left the space enterprise in a continuing decline.

The benefits and advantages the U.S. enjoys from its leading position in space have been noted by many other nations, including China, India, and other rising powers. Many are pursuing competitive strategies to gain similar benefits and diminish our strategic advantage. If successful, these actions will reduce the U.S. technical and commercial lead and level the field in ways detrimental to U.S. interests. Further, there is clear evidence that potential adversaries are developing the means to disrupt or attack U.S. and allied space capabilities and to use space in ways that can threaten American lives and vital interests in crises or conflicts. Despite the long commitment to the peaceful uses of outer space, the U.S. can no longer rely on space being a sanctuary. Our nation's security and well-being grows more reliant on space capabilities, which are increasingly vulnerable to disruption and attack.

CONCLUSION

The U.S. has built a robust space enterprise that provides unique and strategic benefits to the nation. However, there are serious, systemic problems which portend a broad erosion of U.S. leadership and advantage in space. The United States is at a seminal point in the evolution of space as a vital national enterprise. The missions, structure, cultures and programs in the four distinct space sectors are a direct product of the Cold War. New thinking and approaches are essential. Government leadership, investments, and partnerships are critical to putting our space enterprise on a new trajectory. We

must improve management efficiency and effectiveness, interagency cooperation, international engagement, and industrial competitiveness and innovation.

Just as the mastery and use of the maritime and air domains helped define the course of world affairs and the histories of the 19th and 20th centuries, so too mastery of space will be a defining feature of the 21st century. Loss of our strategic advantage in space would have acute consequences, both symbolic and substantive, on U.S. standing in the world and erode capabilities crucial to the nation's security and prosperity in the decades ahead. ***We know the formula for success in space. It takes the right skills, hard work, and effective management, starting at the top. Strong White House leadership is essential to putting the national space enterprise on an effective new course, which in turn will be highly supportive and synergistic with your broader agenda, priorities, and goals for the nation.***

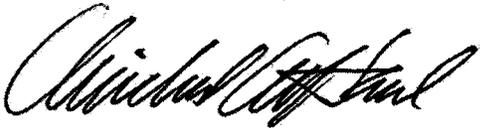
Nearly fifty years ago, a new President challenged America to become the world leader in space, to send Americans to the moon and return them safely to Earth within a decade. America succeeded in achieving President Kennedy's vision, and the nation has benefited beyond imagination from meeting that challenge. America is at a new crossroads, and we need our new President to inspire the nation with a space vision and government actions to assure our continued leadership in the 21st century.

RECOMMENDATIONS

We recommend that you support a six-part plan for active White House engagement to ensure America retains its space leadership.

1. Establish an effective White House focal point and mechanism (such as a National Space Council or an alternative apparatus within the Executive Office of the President) to help you establish strategic direction and priorities, provide management oversight, and coordinate decisions and actions (such as those identified in the attached issue paper) across the departments and agencies. The mechanism should include regular cabinet-level and senior White House engagement.
2. Initiate an assessment of potential gaps and determine mitigation actions for critical defense, intelligence, and civil space missions and capabilities. The assessment should focus on program, budget, and other actions to ensure that space capabilities will be available to manage crises, insure continuity of critical space missions, and protect and advance U.S. national interests. Complete the assessment quickly, in order to inform upcoming budget decisions.

3. Consider creating a Presidential Space Advisory Board (modeled on the President's Intelligence Advisory Board) comprised of distinguished citizens with broad experience on space matters to provide you independent advice and outreach to all space sectors and the public.
4. Revise the current National Space Policy to promulgate strategic direction, establish clear priorities, and align space programs and activities to achieve your broader national objectives. Complete this revision by September of this year.
5. In parallel with revising the National Space Policy, develop a National Space Strategy to define the best ways and means to achieve your policy goals and objectives. The strategy should be broad, inclusive and focus on major cross-sector interdependencies, issues, opportunities, resources, and regulatory tools to achieve the goals. The Executive branch, the Congress, business and the public should be actively involved in crafting and executing the strategy. Complete this strategy by the end of 2009.
6. Assign Presidential priority to the nation's space program through public outreach and communications to link space activities to the administration's broader objectives involving the economy, education, science and technology, energy and environment, international relations, and national security.



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Chairman, Committee for U.S. Space Leadership

Attachment

Top National Space Issues

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TOP NATIONAL SPACE ISSUES

There are many serious problems facing our nation's space program today, including organization, management, leadership, program and governance issues. Some are specific to individual space sectors, while others involve and impact multiple sectors. The following issues are believed to be most significant and pressing, but are not presented in any order of priority. The issue summary is general in nature, and is stated in a way that is not solution specific. Each issue is expanded in a separate issue paper. The new administration should address these issues, considering the full range of potential solutions and actions for each.

CIVIL

Issue 1: NASA's current programs, activities and initiatives span the wide range of Human Space Exploration, Robotic Space Exploration, Earth Science, Earth Observation, Space Science and Aeronautics programs. With the severe fiscal pressures we now face, what should be the overall **scope, balance, pace, and priorities** of NASA's programs to best meet the competing needs within available funding? How should these areas relate to and support top Administration priorities such as technological competitiveness, innovation, global change, energy independence, industrial base, workforce, education, international cooperation, and overall efforts to revitalize the economy? For example, what should be the future for the Space Shuttle program, its replacement and the International Space Station?

Issue 2: Responsibilities and programs within the civil space sector are shared among NASA (and its many field centers), DoI (USGS), DoT, DoC (NOAA), and others, which result in overlap and inefficiencies. Can the organization of the **civil space sector** be improved to more effectively and efficiently pursue missions in areas of Space Exploration, Earth Observation, Space Science, Aeronautics and encouraging a robust commercial space sector? Should any NASA, NOAA or other civil space organizations and infrastructures be realigned or consolidated to improve efficiency and effectiveness, as well as to foster robustness and cooperation with National Security Space and commercial space sectors?

DEFENSE

Issue 1: Space is becoming a contested domain. What responsibilities should the DoD have to monitor the space environment, assess and respond to threats and **protect US (public and private) assets and interests** in space? What is the national strategy and mix of space situational awareness, deterrence, defensive measures and diplomatic efforts, including arms control, in assuring

US space capabilities will be available across the spectrum of conflict, from peace through war?

Issue 2: Space is an increasingly critical element of our military strategy, force structure and operational employment. However, there are growing problems with space organization and management across the Defense Department, particularly in the area of acquisition. This has contributed to the fragility of on-orbit space capabilities. What steps should the DoD take to improve the **organization, management, and mission integration** of its space activities to maximize cost- and mission-effectiveness? Specifically, what recommendations should be adopted from the several recent commissions on National Security Space?

INTELLIGENCE

Issue 1: The intelligence space sector supports a multitude of users across the government and faces growing demands for effective collection of critical intelligence information. How should the Intelligence Community **organize & manage** its space activities to enable rapid, efficient acquisition and operation of innovative space intelligence capabilities while ensuring that **intelligence space programs support the full set of intelligence needs and users**?

Issue 2: Flawed acquisition decisions, budget cuts, poor program execution, and burdensome reporting and oversight now threaten sustainment of key space intelligence capabilities upon which the Nation depends. What should the Director of National Intelligence and Secretary of Defense do to improve intelligence space program execution and oversight to **maintain the needed level of capabilities and reduce fragility** in its space architectures?

COMMERCIAL

Issue 1: The government relies on commercial space capabilities to meet critical government needs for communications, imagery, space launch and other technologies and services. However, commercial capabilities are not incorporated into long-term government planning in a way that can leverage commercial investments and innovation and alleviate government budgetary constraints. What steps should the government take to encourage and prudently **acquire and use commercial space** products and services to meet its needs?

Issue 2: The market for space-derived products and services is becoming increasingly global with a growing number of new competitors, non-market forces, and customers. U.S. export control restrictions (ITAR) have had the unintended consequence of severely reducing market share and business opportunities for U.S. companies, while stimulating aggressive foreign marketing of their "ITAR-free" goods and services. What can and should the government do to **ensure U.S. space industry global competitiveness**? What can the

government do to encourage international cooperation and partnerships among space product and service providers?

INTERAGENCY

Issue 1: There is overlap, duplication and gaps in many programs and activities across the four space sectors, particularly in areas such as space research and technology, launch, communications, protection of assets, homeland security, ground infrastructures, export control and workforce development. How should the USG **coordinate efforts across the four space sectors** at the interagency level, especially in the highly interdependent Defense and Intelligence sectors? To what degree and how should Defense and Intelligence space activities be integrated and/or coordinated, including their relationship to other sectors?

Issue 2: There are common, systemic problems across all sectors including poor performance in space development and acquisition, and severe mismatch between budgetary needs of ongoing programs and available funding. Are there steps the USG can take to **improve processes and stability** in space budgeting and execution, cost estimating, industrial base and workforce management, and overall program management?