

(A version of this essay will appear in the inaugural issue of the new journal
Astropolitics in early 2003)

REFLECTIONS ON SPACE AS A VITAL NATIONAL INTEREST

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In its November 2002 report, the Commission on the Future of the United States Aerospace Industry¹ concluded that “nations aspiring to global leadership in the 21st century must be space faring.” The Commission called upon the United States to create a “space imperative.”²

Leaving aside for the moment a definition of what such a “space imperative” might contain, the Commission’s conclusion about the importance of space capabilities to U.S. national interests is only the latest in a string of such declarations. A few years ago, the Long Range Plan of the U.S. Space Command suggested that “space is emerging as a military and economic center of gravity for our information-dependent forces, businesses, and society.”³ The Commander of the U.S. Space Command at the time, General Howell

¹ This Commission was created by an Act of the U.S. Congress and chartered by the White House. Its twelve members were appointed by both the Congress and the White House. Its mandate included both the aviation and space sectors. Over a twelve-month period beginning in November 2001, the Commission held hearings, conducted inquiries in the United States, Europe, and Asia, and received inputs from all portions of the aerospace sector. For additional information on the Commission and its report, see www.aerospacecommission.gov.

² Commission on the Future of the U.S. Aerospace Industry, *Final Report*, November 18, 2002, p. 3-1.

³ United States Space Command, *Long Range Plan*, March 1998, p. 4-5, quoted in Lt. Col. Peter Hays, *United States Military Space: Into the Twenty-First Century*, U.A. Air Force Academy, Institute for National Security Studies Occasional Paper 42, September 2002, p. 15.

Estes, went further, suggesting that space “will be considered a vital national interest – on par with how we value oil today”⁴

The suggestion that access to space and its uses should be a high priority U.S. concern was echoed in the Clinton administration’s December 1999 *A National Security Strategy for a New Century*, which stated that “we are committed to maintaining U.S. leadership in space. Unimpeded access to and use of space is a vital national interest – essential for protecting U.S. national security, promoting our prosperity and ensuring our well-being.”⁵ This view was repeated in the Bush administration’s September 2001 *Quadrennial Defense Review*, which concluded that “because many activities conducted in space are critical to America’s national security and economic well-being, the ability of the United States to access and use space is a vital national interest.”⁶

Specific wording is important here. The phrase “vital national interest” is applied in U.S. government policy documents only to those U.S. objectives and capabilities so important that the nation would use armed force to protect and preserve them. It would be logical to conclude that if space were indeed a vital national interest, it would receive high priority in government policy and funding decisions to ensure that the country was committed to the pursuit of space power – “the pursuit of national objectives through the medium of space and the use of space capabilities.”⁷

⁴ Quoted in Hays, p. 14.

⁵ The White House, *A National Security Strategy for a New Century*, December 1999, p. 12. In contrast, the 2002 statement of National Security Strategy by the George W. Bush administration strikes a more modest tone about space assets, saying only that the United States must have the ability to “protect critical U.S. infrastructure and assets in outer space.” The White House, *National Security Strategy of the United States of America*, September 2002, p. 30.

⁶ Department of Defense, *Quadrennial Defense Review Report*, September 30, 2001, p. 45.

⁷ Dana Johnson, Scott Pace, and C. Bryan Gabbard, *Space: Emerging Options for National Power*, (Santa Monica: RAND Corporation, 1998), p. 8.

Problems in the Space Sector⁸

This is not the reality, however. There is a substantial gap between statements about the high importance of space to U.S. interests, and both the current state of U.S. space capabilities and the priority given to the space sector by the country's leadership. The result is that a seemingly crucial national security, economic, public service, and scientific capability rests on a very fragile foundation.

Aspects of that fragile foundation include the following: U.S. access to space for critical payloads is based on a space shuttle that is very expensive to operate and subject to too-frequent groundings, and on two new Evolved Expendable Launch Vehicles, the Atlas V and the Delta IV, which depend on a diminishing commercial launch market or increased government subsidies for their economic viability. Elements of an aging launch infrastructure are badly in need of revitalization. A decision on developing a fully reusable launch vehicle continues to be pushed into the indefinite future. Already approved new national security space programs such as the Space Based Infrared System and the Future Imagery Architecture are behind schedule, over budget, and facing unresolved technical problems. Meanwhile, proposed new programs such as space-based radar, a military space plane, and a new generation of GPS are delayed. A Defense Science Board task force is examining the reasons for problems with planned programs and asking whether the United States is becoming too dependent on space capabilities as an element of its national security strategy. There have been quality control problems and in-orbit failures on a number of communications satellites, and the projected growth-producing segments of the space telecommunications sector are either in bankruptcy or

⁸ This section of this essay draws on John M. Logsdon, "A Vital National Interest?" *Space News*, August 12, 2002, p. 12.

have been cancelled or postponed. Few orders for new commercial communication satellites are being placed. The remote sensing business has yet to establish itself as an engine of commercial space growth. The completion of a fully capable International Space Station remains uncertain as the program's management approach is revamped, and the U.S. strategy for exploring Mars is in disarray because of changing priorities on the part of its partners. There is a systemic problem in attracting enough good young people to work in the space sector, and the overall space industrial base is in a weakened state. This is hardly the picture of a vibrant, forward-looking area of activity, fully able to be used in support of important national objectives.

If access to and full use of space is indeed a vital national interest, one would think that this situation would be very troubling to the U.S. national leadership. The reality appears rather different. The space sector has suffered from lack of high-level White House attention for most of the past three decades.⁹ Budgets for civilian and national security space have been relatively level for the past decade, with the NASA budget actually in decline if adjusted for inflation. Congress has dealt with space funding issues only at the margins, or to make sure the interests of particular Congressional districts are well-served. Neither the White House nor Congress has staked out a leadership position with respect addressing the current problems in the space sector.

The Aerospace Commission noted the result of this neglect: "Today, however, a sense of lethargy has infected the space industry and community. Instead of the

⁹ The four years when George H.W. Bush was in the White House were an exception. During the first Bush administration, a White House National Space Council chaired by the Vice President provided focused attention to civilian and commercial space policy issues, and the President on the twentieth anniversary of the first lunar landing called for a sustained commitment to human exploration of the solar system. The Clinton administration abolished the Space Council as a way of reducing White House personnel, and the new Bush administration has assigned space policy responsibility to an overburdened National Security Council.

excitement and exuberance that dominated our early ventures into space, we at times seem almost apologetic about our continued investments in the space program.”¹⁰

Commissioner John Hamre, Deputy Secretary of Defense during the Clinton administration, was even more direct, suggesting that “the U.S. aerospace industry is in deep trouble. Satellite and space-launch manufacturers are in serious financial difficulty and the industry is near collapse.”¹¹

A Leadership Failure?

This essay reflects on the reasons behind the gap between current realities and rhetoric about the importance of space to U.S. interests. It asks the question: “If U.S. ability to access and use space really is a vital national interest, why is it currently in such a distressed condition?” A frequent answer to this question, offered particularly by those convinced of the vital importance of space capabilities, is that there has been a failure of vision on the part of the national leadership, who seem not to recognize the multifold contributions that space capabilities make to the country’s interests and the need for increased investments to obtain the benefits of those capabilities. Space advocates are understandably frustrated by the lack of program and funding priority given to space issues by the White House and Congressional leaders in recent years, even when policy statements which they have endorsed call for such priority. Space policy is still a “niche issue” at both ends of Pennsylvania Avenue, not high on the national agenda or on the agenda of powerful individuals.

It is worth noting that this perception of failed national leadership is commonly noted by many different sectors, each contending for the attention and favor of senior

¹⁰ Aerospace Commission, p. 3-1.

¹¹ *Ibid*, p. V-8.

government leaders. Each sector believes that its issues deserve higher policy priority and usually additional funding. The task of leaders and those who support them is to sort through competing claims and allocate limited resources according their judgment of future payoffs from current investments. Given the political character of the U.S. policy-making process, this sorting process is messy and often only approximates rational behavior. There is no objective means to evaluate the performance of national leaders in reaching policy and funding decisions; that evaluation is provided through the electoral process. So assigning a “failed” grade to leadership performance is a very subjective act.

Applying this general discussion to the space sector, it is difficult to make the case that there has been a persistent failure of national leadership over the past three decades to give the space sector its due, at least as seen by that leadership. There have been too many opportunities for leadership attention to space issues, ranging from the many reports of blue-ribbon committees, to the observations of various space-related anniversaries, to attention given to the role of space systems in various armed conflicts and to discoveries made through space exploration programs. There are periodic reviews of overall national space policy and of specific policy issues, and of course the opportunity for assessing the situation provided by the annual budget preparation and review process. In the course of all these activities and processes, leaders and their immediate staff cannot avoid thinking about space priorities and policies.

One thus must conclude that the case that the space sector has made for increased attention has not yet been compelling. If this is an accurate conclusion, then the failure is not that of the national leadership, but rather in the combination of the actual performance of the space sector and of the arguments about the importance of space

made by sector's leadership. Another possibility is that there has been no failure at all, and that the space sector has been assigned the priority it merits in the current scheme of national issues; space leaders have made their best arguments, the arguments have been heard, and a judgment rendered. If this is the case, then those who believe in the long term importance of space must make a better case. A first step in that direction is providing evidence that the space sector can match its performance to its promises.

Performance as Promised¹²

As the myriad problems in the space sector listed above suggest, there is a widespread performance shortfall in the space sector. If the satellite and space launch industry are indeed "near collapse," then part of its current difficulties is self-created because of poor performance, ranging from overpromising what can be delivered, to not adhering to approved budgets and schedules, to the compromised technical quality of individual products.

The basic confidence that the sector can deliver on to its claims has been badly shaken over the past few years. Unless the space community reverses recent negative trends and uncertainties, understands why it has a credibility problem, and takes steps to regain the confidence of those that provide its funds, its ever taking a more central role in support of U.S. interests could be threatened. There is nothing inevitable about national leadership giving space capabilities a central role in the U.S. economy or military planning; that position must be earned.

Ending the current space malaise is a challenging, but not impossible, task. Fundamental to regaining forward momentum is what political scientist Ronald Brunner

¹² This portion of this essay is adapted from John M. Logsdon, "Performance as Promised," *Space News*, October 14, 2002.

described as “performance as promised.”¹³ Delivering technical, budgetary, and schedule performance as it was promised at the start of a project is a simple enough concept, but difficult of achievement. There are many reasons why the promoters of various space projects are so frequently overly optimistic with respect to technical possibilities, project payoffs, and likely costs and schedules. Basically, their optimism (and perhaps their sense that support will not be forthcoming unless unrealistically high payoffs are predicted) has led them to promise whatever is desired by the people whose approval is needed for a project to be initiated. And, equally important, when the promises are not met, the space sector has too seldom been held accountable, particularly by governments. The kind of market discipline shown over the past few years by the private sector in moving away from space investments is infrequently in evidence in government policy, which is too often driven by parochial political concerns such as local employment impacts or campaign contributions, at the price of performance accountability. If the government followed the private sector lead and shifted its investments away from developing additional space capabilities, the sector certainly would not thrive, at least until it reached a better performance level.

Comprehensive and persistent accountability is thus key to performance as promised. If it is put in place and maintained over a period of years, then shortfalls in promised performance will be penalized and excellent performance rewarded. This will take strong government leadership commitment to giving performance priority over short-term politics. Eventually, those leading the space sector will learn that they must be realistic in their promises, and come forward with sound and achievable proposals. If a

¹³ Ronald D. Brunner, “Performance as Promised: Restructuring the US Civil Space Sector,” *Space Policy*, pp. 116-132.

mutual and continuing relationship of achievable promises and enlightened accountability is developed between project sponsors and project performers, the space sector can in coming years restore its tarnished reputation.

Stressing performance as promised may require a lowering of sights on the part of the space community. Promoting grand visions with no connection to current possibilities will not help rebuild confidence.¹⁴ The space community needs to listen to its sponsors, and develop capabilities that meet user needs and desires, rather than give priority to pursuing its own dreams. What is essential is coming up with proposals for future undertakings that combine achievability with vision, while also addressing problems with current programs.

Is Space Already an Economic or Military Center of Gravity?

An even more fundamental issue than the sectors recent poor performance in deciding where to place space in the hierarchy of national priorities is an objective judgment on just how important space capabilities are to U.S. interests. Making such a judgment is quite difficult, however. Does full U.S. access to space and all its uses indeed constitute a “vital national interest”? If it can be shown in ways convincing to those outside of the space sector that the answer to this question is positive, then there is in fact a pressing need to address the sector’s current problems. If the claims of space’s importance continue to be primarily rhetorical in character, the current situation is likely to persist.

It is beyond the scope of this essay to carry out a full analysis of the validity of the claimed centrality of space capabilities to achieving future economic and national

security objectives, but it is certainly worth noting that not everyone agrees with the proposition that space is already a vital national interest. And if space is not all that important, problems in the space sector are also appropriately of lower priority on the national agenda.

For example, Lt. Col. Peter Hays of the National Defense University has noted that the approximately \$80 billion in annual revenues attributed to the commercial space sector is a rather small amount when compared to other areas of economic activity, and thus that “space-only revenues and valuations have never yet been that big a part of the US economy.” He concludes that space is “simply not a dominant sector or an economic COG [center of gravity] in terms of overall value, revenues, or market capitalization.” Rather, suggests Hays, in economic terms space is best seen as a strategic sector, important as part of the larger global information infrastructure for national security, public services and commercial discourse, and a sector that needs to be valued “in a variety of ways other than just in terms of economics.”¹⁵

On May 3, 2002, U.S. Secretary of Defense Donald Rumsfeld tasked his closest advisers to take an in-depth look at why there were so many problems with various space system developments, and asked them to address the question “Are we too dependent on space?” In its role as an enhancer of land, sea, and air power, some in the military see outer space as “just another high hill,” and are not yet convinced of the wisdom of making U.S. military operations critically dependent on space systems, particularly given their potential vulnerability. Such vulnerability was of concern to the recent Commission

¹⁴ The report of the Commission on the Future of the United States Aerospace Industry provides an example of such a disconnect. After pointing out current problems in the space sector, it proposes asteroid mining, planetary defense, and space tourism as the kind of efforts needed to revitalize the space sector.

¹⁵ Hays, pp. 19-20, 24-25.

to Assess United States National Security Space Management and Organization, which noted in its January 2001 report that the substantial political, economic, and military value of U.S. space systems, and the combination of dependency and vulnerability associated with them, "makes them attractive targets for state and nonstate actors hostile to the United States and its interests." Indeed, the Commission concluded, the United States is an attractive candidate for a "space Pearl Harbor" - a surprise attack on U.S. space assets aimed at crippling U.S. war-fighting or other capabilities.¹⁶

Making space capabilities central to either the operation of the U.S. economy or to successful prosecution of a military operation, without the assurance that those capabilities will be available when needed, is not an attractive prospect to the country's leaders. Logically, there are two courses of action in response to this observation. One is to assure that the capabilities will be available by protecting them by either military or diplomatic means. The other is not to give them a central role, on the chance that they will be not be available in a crisis situation or will be subject to various technical or market limitations.

There is even more uncertainty about the military value, even the wisdom, of developing force application capabilities that can operate in or from space. While some suggest that having the ability to project force from space can enable U.S. global hegemony,¹⁷ others judge both that such developments are not in the U.S. national interest, and at any rate may be a quarter century or more in the future.¹⁸ A full debate on

¹⁶ The Commission report is discussed in John M. Logsdon, "Just Say Wait to Space Power," *Issues in Science and Technology*, Spring 2001.

¹⁷ See for example, Everett Dolman, "Space Power and US Hegemony: Maintaining a Liberal World Order in the 21st Century," paper prepared for George Washington University Security Space Forum, February 7, 2002 (www.gwu.edu/~spi/spaceforum).

¹⁸ For skeptical discussions on the wisdom of developing space-based force application capabilities, see a number of papers on the Security Space Forum web site identified in the preceding footnote. For a

this issue is just beginning in the United States, and the future contributions of space systems to U.S. power projection is a matter of substantial controversy. One respected analyst has noted that “we lack sound measures of effectiveness and analytic constructs for capturing space's military value today, much less in coming decades.”¹⁹

It is not clear, then, that space can be considered today clearly an economic or military center of gravity. Perhaps it is better to see space capabilities as strategic assets important, and in some cases essential, to achieving a wide variety of U.S. economic, political, and security objectives. Whether space by itself already constitutes a “vital national interest” may well be less important than its strategic character in relation to other important U.S. interests.

Creating a “Space Imperative”

What the above discussion suggests is that, for a variety of reasons, the leap from rhetoric to reality in making the space sector a custodian of vital national interests has not yet been made. The space sector has work to do before its centrality to the nation is widely accepted. If substance is to be given to the call in the recent report of the Commission on the Future of the United States Aerospace Industry for the country to accept a “space imperative,” the following steps seem appropriate.

An essential first step is has been suggested above – creating an expectation that performance will match promise. It is the nature of the space sector to attract visionaries excited by the possibility of using space capabilities for purposes ranging from exploring

measured view on the likely schedule for the weaponization of space, see Barry D. Watts, *The Military Use of Space: A Diagnostic Assessment* (Washington: Center for Strategic and Budget Assessments, 2001), p. 98.

other planets, exploiting new areas of commerce, using extraterrestrial resources to create wealth, opening up Earth orbit and perhaps beyond to widespread public travel, to being a decisive arena for protecting U.S. national security. In putting increased emphasis on “performance as promised,” it is important not to lose the contributions of such visionaries, even though they may be overly optimistic in both their technological and financial estimates. Almost by definition, however, visionaries are seldom in the mainstream of a sector of complex activity. What is needed for the mainstream space actors in both the private sector and government to collaborate in establishing a mutual and continuing relationship of achievable promises and enlightened accountability, one which will provide the firm foundation from which the space sector can earn its central role in the nation’s future.

A second step towards a revitalized space sector is a revised investment portfolio, one which recognizes that budgets for space are not likely to increase in the near term, and allocates those resources that are available strategically in order to enable future, improved capabilities. This is easy to say, but hard to do, given the financial demands of current programs. Recently, for example, NASA has had to shift resources from the longer term objective of lower cost access to space to meet the requirements of operating the International Space Station and the space shuttle for the next 15-20 years. The only way that NASA can up significant resources to invest in future-oriented technologies seems to be by reducing its institutional overhead (for example, by closing several of its field centers, a very difficult thing to do politically) or by stopping some of its current activities. Within the Department of Defense, recent organizational changes intended to apply “best practices” from both Air Force and National Reconnaissance Office programs

¹⁹ Watts, p. 31.

could lead to a more integrated, more productive national security space effort. The return of DARPA to space activity is also a promising development.

A third step could be much closer cooperation, and perhaps some degree of integration, among the various government agencies involved in space. NASA was created in 1958 as a separate civilian space agency on political grounds, to show the world that the United States intended to emphasize the peaceful uses of space and to cooperate with other countries in space activities. Those remain valid objectives, but they do not rule out more extensive collaboration between NASA and the Department of Defense in research and technology development activities. There could also be some sort of government-wide organization for common space operations, such as launch ranges, tracking and data relay, in-orbit activities, and other areas where the civilian and national security sectors carry out duplicate functions.

Yet another productive initiative would be addressing the vulnerability of current and future space assets to both accidental and deliberate interference with their functioning. Creating an internationally agreed upon set of principles to minimize space debris is essential, and some form of international “rules of the road” for space operations would seem to be desirable. The mission of space control has become associated with using some form of force application to deny potential adversaries access to and use of space, but the space control concept also, and more importantly, includes assuring that the United States can count on its own access and use of space. This aspect of space control, perhaps better called space assurance, should be given increased emphasis. One way of securing the ability of U.S. space assets to operate is by providing some form of space defense capabilities; a potential alternative is a treaty-based “freedom of space

operations” regime. Determining whether such a regime can be agreed to is a more productive task for U.S. diplomats than supporting the current defensive U.S. approach to discussions of preventing an arms race on outer space.

More, and better quality, discussions among advocates of developing a full range of national security space systems, including both defensive and offensive force application capabilities, and those skeptical of the benefits or wisdom of pursuing space weaponization would provide a sounder basis for national policy decisions. To date, most discussions of such issues have not included thoughtful individuals holding a variety of positions. In the U.S. system of developing proposals for policy action, discussions among such individuals and analyses by their organizations are an essential element. To repeat a point that was made earlier, “we lack sound measures of effectiveness and analytic constructs for capturing space's military value today, much less in coming decades.”²⁰ Developing such measures and constructs would provide national leaders a better foundation for the crucial decision on whether to pursue the path towards space weaponization. There does not exist today an adequate foundation for that decision.

The sum of these suggestions leads inexorably to the need for some sort of expanded White House focus on space matters, since almost all of them cut across agency jurisdictions and require a national perspective. The current situation, in which the lead staff responsibility for space policy formulation is assigned to a mid-level individual in the National Security Council, assisted by another staff member in the Office of Science and Technology Policy, is an accurate reflection of the existing priority of space issues within the Bush administration. There have been recurring calls for re-establishing the National Space Council. The Aerospace Commission in its recent report,

reflecting its mandate to address both the aviation and space sectors, suggested that a Bureau of Aerospace Management be created within the White House Office of Management and Budget to “plan, budget, and manage” U.S. aerospace efforts, with a White House Aerospace Policy Coordinating Council serving as the inter-agency forum for policy deliberations. It also suggested that the Congress establish a Joint Committee on Aerospace.²¹ While implementation of these specific suggestions is unlikely, since they involve major organizational change, they do suggest that advocates of higher priority for space in the United States recognize the need for some central office or structure to provide a space focus at the top level of the U.S. government.

There is a certain chicken-and-egg character to the call for a centralized space policy structure. It seems such a structure would be necessary to manage the government’s role in the space sector as a “vital national interest,” but is unlikely to be established until the President and his associates assign that status to the sector in practice as well as rhetoric. The Commission to Assess United States National Security Space Management and Organization recommended that “The President should consider establishing space as a national security priority.”²² This is not yet happened, of course.

One possible path towards an increased priority for space within the White House has negative overtones. If for some reason the United States lost some portion of its access to space or its ability to use an important space capability, that development might dramatize the crucial role of space in support of national objectives and interests. Short of

²⁰ Watts, p. 31.

²¹ Aerospace Commission, pp. 5-6 – 5-7.

²² Report of the Commission to Assess United States National Security Space Management and Organization, *Executive Summary*, January 11, 2001, p. 31.

such a development, it will take the recognition by the President or one of his senior advisers of the importance of space to initiate needed organizational changes.

Taking steps such as those just suggested will require acts of will from all involved, since none are easy to carry out. What has been most missing in the space sector over the past three decades is precisely the national will to excel, and to tap the potentials of space for their maximum contribution to the nation. When President John F. Kennedy on May 25, 1961 asked the Congress to approve his decision to send Americans to the moon, he said: "Let it be clear that I am asking the Congress and the country to accept a firm commitment to a new course of action." He added to his prepared text: "This is the choice and finally you and the American public must decide."²³

The national will to accept the Apollo commitment did emerge and was sustained through the July 1969 first lunar landing. It took a challenge by the U.S. Cold War adversary, the Soviet Union, to catalyze this expression of national will. It is not clear what can provide a similar catalyst today, but without it the most likely future is continuation of the "lethargy" pointed out by the Aerospace Commission.

The Aerospace Commission report notes that "Japan, China, Russia, India and France, to name a few, see space as a strategic and economic frontier that should be actively pursued." It adds "So should we."²⁴ Whether an international challenge to U.S. space leadership is either likely or sufficient to produce an Apollo-like response is debatable.

²³ President John F. Kennedy, "Urgent National Needs," Speech to a Joint Session of Congress, May 25, 1961, reprinted in John M. Logsdon *et al.*, *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program*, Vol. I, Organizing for Exploration (Washington: Government Printing Office, 1995), p.454.

²⁴ Aerospace Commission, p. 3-1.

What then can substitute for an international challenge to create the U.S. “space imperative” that seems needed to shake the sector out of its current lethargy? The best candidate is a clear demonstration, most likely in the national security sector, of the contribution of space assets to a high priority U.S. interest or objective. What if, for example, the use of space capabilities led to the capture of Osama bin Laden, the location of weapons of mass destruction in Iraq, or the interdiction of a terrorist action against U.S. interests? Such a success could add credibility to the argument that increased priority for space would have great benefits to the nation, and could catalyze the kind of changes suggested above. If this were to happen, the United States could indeed make space capabilities a corner of its national power.

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