Space Policy Redefined: The Reagan Administration and the Commercialization of Space

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When discussing the 1980s, most historical accounts of the U.S. space program tend to focus exclusively on such "big ticket" items as the space shuttle (particularly the *Challenger*) or the space station. This is rather unfortunate, since it can be argued that another development in space policy during this period, although not as spectacular, was in its own way as significant and far-reaching as the 1961 decision to send Americans to the moon. Utilizing the concept of *problem definition* from the literature in public policy studies, this essay will examine the Reagan Administration's initiatives in space, particularly those concerned with privatization and commerce, and show how they fundamentally reshaped the nature of the U.S. space program.

Problem Definition and Public Policy

Many recent studies in public policy formation have noted that before government officials can begin to address a public problem, they must first *define* it, that is, come to some agreement as to "what kind" of problem they are facing [Dery, 1984; Rochefort and Cobb, 1994]. This is not always a straightforward process. There is, for example, considerable disagreement as to whether homelessness is an economic, mental health, or housing issue, or, as some see it, a matter of personal responsibility [Rochefort and Cobb, 1992]. Similarly, some observers believe that drug addiction has been incorrectly characterized as a law enforcement problem, rather than a health concern [Kraus and Lazear, 1991; Acker, 1993; Reuter, 1995]. What these and many other examples suggest is that problem definition involves more than simply placing a label on an issue. It is, rather, a question of how public officials choose to conceptualize a problem.

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Accordingly, the way policymakers define an issue determines a great deal about the way that resulting policy responses are shaped. To begin with, agreement on a definition usually (although not always) settles the issue of *problem ownership*, that is, the agency, organization, or institution to be given jurisdiction over the issue. Initially defining AIDS as a virological problem – as opposed to a public health issue – essentially assured that it would be assigned to the Centers for Disease Control, rather than the Public Health Service [Barker and Peters, 1993; Street, 1993]. Defining Head Start as an anti-poverty initiative, and not an education program, meant that it remained part of the Department of Health and Human Services, instead of being transferred to the newly-created Department of Education [Radin and Hawley, 1988].

Second, definition plays an important role in determining policy priorities [Portz, 1996]. Some types of problems, such as those related to national defense (or at least perceived to be), generally receive more attention – and usually more resources – than one defined as, say, a health or education issue. Indeed, on occasion advocates will seek to frame an issue as a high-priority item in an attempt to increase its political support. President Carter, for example, often described his energy programs in terms of national security, stressing, for example, "energy independence" from foreign sources of oil [Davis, 1993].

Finally, it has long been known that some types of organizational structure – the amount of specialization, the level of centralization, the prevalence of formal of rules, and so forth – are better suited for some types of tasks than others [Mintzberg, 1979, 1981]. A highly centralized and formalized arrangement might work well for a military-type organization, but would probably not be suitable for a laboratory or other center engaged in basic research and development activities [Thompson, 1967]. In other words, the appropriate organizational structure for a government agency is (or at least ought to be) based upon the "kind" of problem it is attempting to solve.

Applying the issue definition perspective to U.S. space policy provides a great deal of insight into the manner in which it has evolved over the past 40 years. Like the policy problems discussed above, there are many different ways of understanding the "purpose" of spaceflight: national defense, economics (i.e., fostering such benefits as communications, weather forecasting, remote sensing, etc.), and scientific research, as well as such intangible features as "national prestige" and "technological leadership." All of these (and more) are listed as NASA objectives in the National Aeronautics and Space Act of 1958. As with most issues, however, the political saliency of individual items has risen and fallen over the years. Defining space policy, then, consists of selecting which of these presumed benefits of space R&D is the "most important" at a given point in time.

The U.S. Space Program, 1957-1980

Viewed in this way, it becomes immediately apparent that the rapid expansion of the space program's early history, and particularly such events as

the creation of National Aeronautics and Space Administration in 1958 and President Kennedy's 1961 decision to send Americans to the moon, is due almost exclusively to the fact that by the late 1950s space had become defined as a Cold War issue. After the Soviet Union "beat" the U.S. into space with *Sputnik I* in 1957, and again with the flight of Yuri Gagarin in 1961, a substantial number of policymakers, as well as much of the general public, felt that "catching up" to the Russians was essential for national prestige, national security, and even, for some, "national survival" [McDougall, 1985; Launius, 1994].

As a result, the space program, with NASA as the lead agency, quickly acquired a great deal of visibility and stature, not to mention a considerable share of the nation's resources. The announcement by Kennedy of the lunar landing goal, a decision made almost exclusively according to Cold War criteria [Logsdon, 1970], led to an even greater acceleration of the program, and even more rapid growth for NASA. None of the other economic or scientific benefits of space R&D – although certainly acknowledged at the time, could possibly have justified such a "crash effort."

The general panic that kindled this expansion, however (which had as much to do with the novelty and exotic nature of spaceflight as with apprehension of the Soviet Union), did not last much beyond the mid-1960s. While Cold War-based fears were still a fact of life for many Americans, and most U.S. policymakers were still concerned over Soviet political and military activity, the "space race" was increasingly seen as having little bearing on the superpower rivalry. In short, by the end of the decade, the Cold War definition of space policy had lost virtually all of its political saliency.

Unfortunately for NASA, there was no alternative definition to take its place, at least not one that would justify the size, structure, and (especially) the budget of the agency as it had by then developed. In the years following the successful Apollo missions, commentators frequently bemoaned the program's "drift" and lack of purpose. Various explanations were put forward to explain this state of affairs, including lack of leadership, the absence of a "grand" overarching mission like Apollo, and alleged mismanagement at NASA [Kay, 1995, chp. 2]. As the analysis presented here suggests, however, the actual basis for the problem lay in the fact that throughout the 1970s, space policy had become "undefined."

Space Policy in the Reagan Administration

All of this was to change when Ronald Reagan took office in 1981. Officials of the new Administration were strongly motivated by a sense of space R&D as an element of national policy, and quickly set about redefining the space issue (although no one used this term) for the first time since 1957. Under this new definition, space policy was to have two primary missions, both of which grew out of the Administration's larger political aims and views on the role of government.

The first was in the area of national defense. Although the controversial Strategic Defense Initiative is the most well-known project of this period, the

Administration's space-related defense policies were actually quite far-reaching. Department of Defense spending for satellite surveillance, communications, and navigation increased significantly throughout the 1980s. In fact, by 1988, DOD's budget for space operations was actually higher than NASA's [U.S. NASA, 1996, Appendix E-1].

The second major thrust of Reagan's space policy – and the one of major interest here – was the development of space commerce. As noted earlier, advocates of space research had for years extolled its potential application in communications, weather forecasting, navigation, and so on. Very little thought, however, was ever given to who would actually do this "applying." As a result, most of the early efforts in space service provision were carried out in the same fashion as the program generally, which is to say, as government projects.[1]

For the Reagan White House, there was never any question as to the proper mechanism for exploiting the economic benefits of space. The very first Administration policy statement on space called specifically for "a climate conducive to expanded private sector investment and involvement in space activities" [U.S. Executive Office of the President, 1982, p. 5]. From this time forward, references to space business and private sector involvement and investment would be a standard part of any official pronouncements on space policy. Just as during the 1950s and 60s, when presidential speeches and press conferences, Congressional testimony and debates, and other public discussions of the status of the U.S. program always included some allusion to the Russians (who was "ahead" or "behind" in what area, the need to "catch up" or "win," etc.), such statements after 1982 never failed to make a reference to the importance of space commerce.

Moreover, as had happened after *Sputnik*, the government undertook a major reorganization of space policy in order to bring it more in line with this new definition. The Cabinet Council on Commerce and Trade (CCCT), the White House Economic Policy Council, and the Senior Interagency Group for Space (SIG (Space), a coordinating body consisting of representatives from each relevant Department and agency) each established a task force on space commercialization that actively sought out business leaders and corporate contacts. In addition, new organizations dedicated to space privatization were established within the Departments of Commerce and Transportation (see below). Finally, NASA itself began to develop and implement programs intended to encourage commercial space activities, although (as will also be discussed further below) how well these – as well as other aspects of the agency's operation – fit into the Administration's vision was open to question.

[1] The sole exception to this were communication satellites, which had been privately owned and operated since the early 1960s.

Commercial Space Programs

Of all of the programs and initiatives to emerge from all of this activity, the most widely discussed – and arguably the most successful – was the creation of the commercial launch industry. On September 9, 1982, a Houston-based firm, Space Services Incorporated of America, launched the first privately-developed commercial rocket, named *Conestoga I.* Before it could accomplish this historic feat, however, the company was first forced to confront a legal and regulatory tangle that involved 22 different federal statutes and 18 separate agencies, including NASA, the Federal Aviation Administration, the Federal Communications Commission, the State Department, and the Bureau of Alcohol, Tobacco, and Firearms [*Congressional Record*, 1984, p. S-13888; Yelton 1989]. There was no question about these laws and regulations meeting legitimate public objectives (e.g., insuring public safety and compliance with international treaties, coordinating usage of the public airwaves, etc.). On the other hand, each had been developed independently over long periods of time, and obviously without regard for (then non-existent) commercial space launches. The overall result was, to say the least, a significant legal and administrative challenge for the company. Indeed, SSI President David Hannah would later inform the Congress that securing all of the necessary licenses and waivers represented the single most expensive item in the entire *Conestoga* project [U.S. House, 1983, pp. 60-1].

Seeking to ease this regulatory burden and help pave the way for the development of a new industry, President Reagan in May 1983 issued a directive ordering SIG (Space) to establish a Working Group on Commercial Launch Operations [U.S. Executive Office of the President, 1983, pp. 2-3]. In a report issued the following September, the Working Group recommended that a single federal agency serve as a "focal point" between the government and private launch providers (an arrangement which would become known as "one-stop shopping"). After further discussion within SIG (Space), the Economic Policy Council, and the CCCT – mostly dealing with whether the Department of Commerce or Transportation would serve as the "lead" agency – the president signed an Executive Order in February 1984 designating DOT as the "single point of contact" to "expedite the processing of private sector requests to obtain licenses" to operate expendable launch vehicles [U.S. Executive Office of the President, 1984].[2] DOT established a new organization, the Office of Commercial Space Transportation (OCST), to carry out this task.[3]

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[2] The term "expendable" refers to traditional, "throw-away" rockets, as opposed to reusable or partially reusable launch vehicles like the space shuttle.

[3] DOT's role was further expanded by Congress in the Commercial Space Launch Act of 1984, which (in addition to codifying the directives of the earlier Executive Order) gave the Department authority to issue launch licenses directly [Public Law 98-575, 1984]. In 1988, Congress amended the Act to allow the Secretary of Transportation to set the maximum level of insurance required for private launch providers using government-owned launch facilities [Public Law, 100-657, 1988].

The first licensed commercial launches – one by SSI and another by the McDonnell Douglas Corporation – took place in 1989 [U.S. Department of Transportation, 1990]. In its second full year of operation, the U.S. commercial space launch industry had generated more than half a billion dollars in revenue [U.S. Congressional Research Service, 1992, p. 24]. By 1993, 6 private companies had entered the industry, and more than 40 launches had been scheduled over the next four years [U.S. DOT, 1993]. Although it is still considered a high-risk industry, largely because of international competition (one U.S. company has already gone out of business), commercial rocket launching is certain to remain a permanent, and most likely a prominent, feature of space research and development.

Unfortunately, some of the Administration's other attempts at commercialization were less successful. One of the more notable failures was the Industrial Space Facility, the so-called "industrial park in space." The product of another Houston-based company, Space Industries Incorporated, the ISF was to have been a commercially developed, owned, and operated station for conducting experiments in microgravity manufacturing. The virtual absence of gravity in low earth orbit makes it possible to produce a number of products – crystals, pharmaceuticals, alloys, etc. – that cannot be manufactured on earth. Unfortunately, very little was known about these production processes, because there was almost no opportunity to conduct experiments longer than about 10 days (the maximum mission time for the space shuttle). SII executives planned to lease space on the station to private companies for manufacturing experiments lasting as long as several months. Unlike NASA's space station, approved by Reagan in 1984, the ISF was not intended to be permanently inhabited. Astronauts would "tend" it periodically, installing new experiments and retrieving old ones, but day-to-day maintenance would be carried out by automated systems.

Initially, the ISF was to have been a purely private undertaking. According to a 1985 agreement between SII and NASA, the latter would provide 3 shuttle flights – one to place the facility in orbit, the other two for astronaut visits – "on credit," which was to have the full extent of government involvement. Unfortunately, the company encountered a number of problems. To begin with, it appears that SII had overestimated private sector interest in microgravity processing, at least at that point in time. Although materials processing in space held high promise in theory, technical and economic uncertainties led most companies to balk at the risk and high costs. In addition, the *Challenger* explosion in 1986 caused some potential customers to worry about assured access to their investment. As a result, by 1987 SII had managed to raise only $30 million for a project they had estimated would cost around $700 million [White Paper, Industrial Space Facility, 1988, p. 2].

In late 1987, the company approached NASA once again, this time with a proposal that the space agency become an "anchor tenant" by agreeing to lease 70 percent of the ISF during its first five years, at an estimated cost of $140 million per year [ibid]. Such a arrangement, SII felt, would reassure potential investors. NASA, however, while supportive of the proposal when it

had been a purely commercial venture, did not wish to become involved in any project that could potentially undermine political support for its space station (which had, by that time, run into political trouble).

It was at this point that the Reagan Administration began to intervene. The White House Economic Policy Council, led by the Department of Commerce and its newly-created Office of Commercial Space, put great pressure on NASA to accept the proposal. In February 1988, Reagan himself declared in a new National Space Policy that the U.S. would indeed become SII's sought-after "anchor tenant" [U.S. White House, 1988, p. 2].

Meanwhile, some Members of Congress, particularly those who were skeptical of the space station program saw the ISF as a cheap alternative. As part of a continuing budget resolution for fiscal year 1988, Congressional appropriators ordered NASA to set aside $25 million from funding for its space station (which had already been cut in half from what the agency had requested) as a first installment on an ISF lease [Marshall, 1988/9], and threatened to withhold another $90 million from the program budget until the agency came to a satisfactory agreement with SII [Green, 1988].

Finally, in March 1989, Congress voted to have the National Academy of Sciences conduct an independent study of the project. The NAS report concluded that there was no pressing need for such a facility prior to the completion of the permanent space station, then assumed to be by the late 1990s [NAS, 1989]. In addition, a number of other space-related companies began to object to what they saw as a direct government subsidy ["ISF – A Commercial Space Venture," 1988; "Beggs Warns CDSF Threatens Spacehab," 1988]. Although SII tried to keep the idea alive, primarily by seeking overseas customers, the whole notion of a private space station soon faded away completely.

Unresolved Issues

Even after fifteen years of the newly-defined space program, significant questions remain. The first concerns the current status of the "commercial" definition of space policy. On the one hand, it is very clear that President Bush was determined to continue the Reagan-inspired approach to space commercialization. The first Bush Administration directive on space is virtually identical in wording to the final statement by Reagan [Simpson, 1995, pp. 898-9], with the sole (and important) exception that SIG (Space) and other such organizations were replaced by a single National Space Council chaired by Vice President Quayle [U.S. Executive Office of the President, 1989]. The Space Council in particular proved to be quite "pro-business," sometimes even bypassing NASA in order to obtain industry's views on the future of the space program [Lawler, 1989].

The Clinton Administration's views on space policy, however, have not been as clear. Although its National Space Policy calls for encouraging "private sector investment in, and use of, space technologies" [U.S. Executive Office of the President, 1996, p. 1] this does not appear to be as high a priority as it was in the past two administrations. In addition, Clinton has never established a

central space organization like SIG (Space) or the National Space Council for coordinating government space activities. Instead, this task has been relegated to the National Science and Technology Council, a part of the Office of Science and Technology Policy that is responsible for coordinating *all* federally-funded R&D [ibid, p. 2].

More serious questions, however, arise from the process of redefinition itself. As noted earlier, the manner in which an issue is defined determines the type of organizational and institutional arrangements established to deal with it. With regard to space policy, neither of the two new definitions promulgated by the Reagan Administration – defense and commercialization – offered much of a role for NASA. The size, structure, and operations of the nation's space agency were specifically designed to carry out a different sort of mission, under an entirely different conceptualization of the space "problem." Such reasoning was clearly behind the Administration's decisions to create entirely new agencies such as OCST and the Office of Commercial Space rather than rely upon NASA.

In fact, there is reason to believe that some Reagan Administration officials viewed NASA as actually representing an impediment to their policy aims. In the case of commercial space launches, for example, DOT was an early critic of NASA's practice regarding space shuttle pricing. In order to encourage private use of the shuttle, NASA had set a price for flying experiments that was, in DOT's view, too far below market price. These conditions, it was argued, undermined the economic incentives of the private space launch market. After much heated debate, the White House announced a new price – $74 million for commercial and foreign users [U.S. Executive Office of the President, 1985] – that DOT felt was still too low. All of this was changed, however, not through any action by NASA, but rather by the *Challenger* accident and Reagan's subsequent decision to ban virtually all private users from the shuttle [see Kay, 1995, pp. 162-3].

NASA has made some attempts to move more directly into commercial space activities. In 1985, it established the Centers for the Commercial Development of Space, a consortia of industry and academic institutions funded by "seed money" from NASA that are attempting to develop commercial enterprises in a number of space-related areas. The program has, however, proved to be rather controversial. The agency had expected, for example, that the Centers would become financially independent within four to seven years after their creation, but (in part due to the *Challenger* accident) that goal has been delayed several times [ibid, p. 163].

All in all, there are still serious questions about the proper role of the nation's first space agency. It is an easy matter to justify a large government organization like NASA if the primary purpose of the space program is to protect national security (broadly conceived). If, on the other hand, the policy objective is to facilitate the entry of the private sector into space activities, the analysis presented earlier suggests that structure of the responsible government organizations ought to look quite different. In short, the issue that has yet to be settled is who precisely "owns" U.S. space policy.

Conclusion

When defined as a Cold War issue, the U.S. space program tended to emphasize highly visible – and largely symbolic – "spectaculars," programs like the moon landing that were intended to demonstrate American superiority over the USSR. An economic definition of space policy, however, does not readily lend itself to such grand and large-scale projects. Thus, the program as redefined by Reagan did not – indeed, could not – have an equivalent to Project Apollo. Instead, it produced a number of smaller (relatively speaking) and more modest policy initiatives.

Moreover, as the two cases presented here indicate, the approach has had its share of both successes and failures. This, too, is consistent with a new conceptualization of space policy. After all, failure is a far more expected – and more accepted – outcome in business ventures than in national security matters. In other words, the redefinition has made the space program more "entrepreneurial" than before.

In general, it is clear that the reorientation of space policy has had a major impact. Revenues from U.S. space industries totaled $4.4 billion in 1991, and had grown to $7.5 billion by 1995 [U.S. Department of Commerce, 1992, p. 1; U.S. House 1996, p. 13]. Even more significant than economics, however, is the overall change in attitude toward what the space program is all about. With growing frequency, stories in the popular press describe new "missions" in space, conducted, not by public organizations like NASA, but rather by private companies seeking to make a profit [see, for example, Oberg, 1998]. Assuming that this trend continues, the 1980s will one day come to be seen as a historic turning point, the era in which space policy was redefined.

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