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# \*\*\*Mechanisms\*\*\*

## Tax Incentives 1NC

### Text: The United States federal government should grant a 25 year tax exemption to the first private entity that [ insert mechanism/mandate of the plan ]

### Twenty five year tax exemption solves innovation and is the BEST way to spur private development.

Hudgins 2004 (Edward, formerly director of regulatory studies for the Cato Institute and editor of *Regulation* magazine, is an expert on the regulation of space and transportation, pharmaceuticals, and labor. He served as a senior economist for the Joint Economic Committee of the U.S. Congress and was both deputy director for economic policy studies and director of the Center for International Economic Growth at the Heritage Foundation, “return to the moon? Not with this NASA,” The Atlas Society, http://www.atlassociety.org/return-moon-not-nasa)

Or consider a radical approach proposed by former Rep. Bob Walker (R-PA). The federal government wouldn't need to spend any taxpayer dollars if it gave the first business to construct a permanent lunar base with its own money a 25-year exemption from all federal taxes on all of its operations, not just those on the Moon. Think of all the economic activity that would be generated if a Microsoft or General Electric decided to build a base! And the tax revenue from that activity probably would offset the government's revenue losses from such an exemption. If we're true to our nature, we will explore and settle planets. But only individuals with vision, acting in a free market, will make us a truly space-faring civilization.

## ----Ext. Taxes Solve Space

### Taxes key to innovation and the private sector development of space

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

A fourth proposal, the Zero Gravity, Zero Tax Act (H.R. 3898), introduced by Rep. Dana Rohrabacher (R-Calif.), would exempt from taxes many space activities. This approach is likened to leaving Internet commerce untaxed as a means of ensuring that a new realm of commerce not be crushed in its infancy by the heavy hand of government. This approach would be preferable to targeted government assistance.

### Tax incentives encourage private sector development of space, which solves the aff.

Space Settlement Institute, 2004 (Space Settlement Institute, Recommendation 5-2 from "A Journey to Inspire, Innovate, and Discover," the report of the President's Commission on the Implementation of United States Space Exploration Policy, June 2004 http://www.space-settlement-institute.org/Articles/rec52.htm)

The following is the complete text of Recommendation 5-2, along with the section of the report that considers each point of the recommendation in detail. RECOMMENDATION 5-2: The Commission recommends that Congress increase the potential for commercial opportunities related to the national space exploration vision by providing incentives for entrepreneurial investment in space, by creating significant monetary prizes for the accomplishment of space missions and/or technology developments, and by assuring appropriate property rights for those who seek to develop space resources and infrastructure. Section III - B. Encouraging Commercial Activities Although many companies exist and more are emerging in the field of space, an increase in both the number and variety of such businesses would vastly increase the processes and materials available for space exploration. The private sector will continue to push the envelope to succeed competitively in the space field. It is the stated policy of the act creating and enabling NASA that it encourage and nuture private sector space. The Commission heard testimony on both positive incentives and potential bottlenecks encountered by the private sector as they attempt to exploit these commercial opportunities. A space industry capable of contributing to economic growth, producing new products through the creation of new knowledge and leading the world in invention and innovation, will be a national treasure. Such an industry will rely upon proven players with aerospace capabilities, but increasingly should encourage entrepreneurial activity. Prizes. The Commission heard testimony from a variety of sources commenting on the value of prizes for the achievement of technology breakthroughs. Examples of the success of such an approach include the Orteig Prize, collected by Charles Lindbergh for his solo flight to Europe, and the current X-Prize for human suborbital flight. It is estimated that over $400 million has been invested in developing technology by the X-Prize competitors that will vie for a $10 million prize - a 40 to 1 payoff for technolgy. The Commission strongly supports the Centennial Challenge program recently established by NASA. This program provides up to $50 million in any given fiscal year for the payment of cash prizes for achievement of space or aeronautical technologies, with no single prize in excess of $10 million without the approval of the NASA Administrator. The focus of cash prizes should be on maturing the enabling technologies associated with the vision. NASA should expand its Centennial prize program to encourage entrepreneurs and risk-takers to undertake major space missions. Give the complexity and challenges of the new vision, the Commission suggests that a more substantial prize might be appropriate to accelerate the development of enabling technologies. As an example of a particularly challenging prize concept, $100 million to $1 billion could be offered to the first organization to place humans on the Moon and sustain them for a fixed period before they return to Earth. The Commission suggests that more substantial prize programs be considered and, if found appropriate, NASA should work with the Congress to develop how the funding for such a prize would be provided. Tax Incentives. A time-honored way for government to encourage desired behavior is through the creation of incentives in the tax laws. In this case, an increase in private sector involvement in space can be stimulated through the provision of tax incentives to companies that desire to invest in space or space technology. As an example, the tax law could be changed to make profits from space investment tax free until they reach some pre-determined multiple (e.g., five times) of the original amount of the investment. A historical precedent to such an effort was the use of federal airmail subsidies to help create a private airline industry before World War II. In a like manner, corporate taxes could be credited or expenses deducted for the creation of a private space transportation system, each tax incentive keyed to a specific technical milestone. Creation of tax incetives can potentially create large amounts of investement and hence, technical progress, all at very little expense or risk to the government. Regulatory Relief. Government regulation of the nascent private sector space industry is ongoing and will be necessary in the future, but it is important to ensure that this industry not become over-regulated. A key issue in the private space flight business is liability. There is a pressing need for a change in liability laws to set a reasonable standard for implied consent. People throughout society do dangerous things for fun and profit; it is not reasonable to impose governmental risk standards on people who are willing and eager to undertake dangerous or hazardous activities. In addition, numerous laws covering occupational safety and environmental concerns should be reviewed carefully to make sure that the government is not burdening new space industry unduly with irrelevant or unobtainable compliance requirements. Property Rights in Space. The Unites States is signatory to many international treaties, some of which address aspects of property ownership in space. The most relevant treaty is the 1967 UN Treaty on the Peaceful Uses of Outer Space (the "Space Treaty"), which prohibits claims of national sovereignty on any extraterrestrial body. Additionally, the so-called "Moon Treaty" of 1979 prohibits any private ownership of the Moon or any parts of it. The United States is a signatory to the 1967 Space Treaty; it has not ratified the 1979 Moon Treaty, but at the same time, has not challenged its basic premises or assumptions. Because of this treaty regime, the legal status of a hypothetical private company engaged in making products from space resources is uncertain. Potentially, this uncertainty could strangle a nascent space-based industry in its cradle; no company will invest millions of dollars in developing a product to which their legal claim is uncertain. The issue of private property rights in space is a complex one involving national and international legal issues. However, it is imperative that these issues be recognized and addressed at an early stage in the implementation of the vision, otherwise there will be little significant private sector activity associated with the development of space resources, one of our key goals.

### Tax incentives solve comparatively better than government funding.

Gessing, 2004 (Paul J., Director, Government Affairs, National Taxpayers Union, “Give tax incentives to investors of space ventures”, Jan 16, <http://articles.chicagotribune.com/2004-01-16/news/0401160354_1_ideal-policies-space-agency-manned>)

Give tax incentives to investors of space ventures Although exact details of President Bush's plan to send astronauts to Mars are unclear, unless he plans to resurrect the old Soviet Union to provide needed competition for NASA, even preliminary estimates of $1 trillion for a trip to Mars could be too low ("Budget concerns to dog Bush space vision," News, Jan. 11). No matter how much money is poured into the space agency, NASA will always be hampered by the fact that it hires some of the finest technical minds in the world and then burdens them with useless and contradictory rules that are the product of Congress' need for political expediency and tendency to meddle. Manned space flight may or may not be the most efficient and cheapest means of exploring outer space, but the contrast between the Spirit rover's success in photographing Mars and the agency's checkered history with manned missions is striking. NASA's government-sponsored space research monopoly, however, makes both learning from past mistakes and financial prudence a challenge. Before digging the nation further into debt with a costly mission to Mars, President Bush and Congress should embark on significant legislative reforms that will make space exploration safer and more cost-effective. The Invest in Space Now Act is one initiative that would provide tax incentives to investors willing to back private space ventures. While tax credits aren't always ideal policies, this proposal is a far better alternative than pumping more funds into the federal space monopoly.

### Tax incentives drive the private sector into developing and exploring space

Hearsey 2008 (Christopher M. Graduate Student, The American University, Department of Justice, Law & Society The American University, Washington, A Review Of Challenges To Corporate Expansion Into Outer Space http://www.astrosociology.org/Library/PDF/Hearsey\_CorporateExpansion.pdf)

In a study on the effects of international taxation, William Lee Andrews, writes on the germaneness of why corporations should pursue space commerce. Mr. Andrews writes the Frontier Thesis of Frederick Jackson is part of the American experience. Quoting Jackson: “[s]ince the days when the fleet of Columbus sailed into the waters of the NewWorld, America has been another name for opportunity, and the people of the United States have taken their tone from the incessant expansion which has not only been open but has even been forced upon them.” “Space is a special kind of place—a frontier,” says Andrews; as such, he believes the best solution to open the frontier and relieve some of the uncertainties associated with commercial space is to protect private space ventures “from the tax burden in preparation for the development of space industry.” His solution is “a tax holiday for new space related activities… [including] space asset capital gains.” Consequently, private space corporations “would be subject to no income tax liability, so long as the preponderance of its gross revenues stemmed from actual space activities” occurring beyond 90-100 kilometers from the Earth’s surface.§§§§§§§§§§§§ These solutions will help reduce the tax burden for private space corporations in the United States operating anywhere in space or on Earth.

### Tax incentives key to space development

Graves 2010 (K. Leslie, author of the published novels: Earth Moon Colony Two, Mars Moon Colony One and Earth and Mars Moon Colonies.  He also wrote: Killing Kathleen: Rough Notes from a Dead Man, Battle for Riker’s Island: Tobacco Run. <http://shine.yahoo.com/channel/life/u-s-financial-crisis-give-generous-tax-incentives-to-private-money-for-outer-space-development-and-we-will-all-eat-work-and-gain-2476227> April 19th “U.S Financial Crisis - Give Generous Tax Incentives to Private Money for Outer Space Development and We Will All Eat, Work and Gain“)

All of the world economies would grow rich if we had international cooperation and had mining and agricultural grow panels in those two places. The shipping, the processing of the ore and the technology development alone would create millions of new job opportunities.  But the bottom line should be that no human goes hungry. Trust me, if I did not have to spend money on food, I'd spend it on something else.    Private industry and wealthy individuals have all the money in the world now.  And why shouldn't they?  We would all take their place if we could.  Let's stop the blaming and recognize what they want is more, more money and more power.  As long as I can eat, send my children to the best school they qualify for and have a growth opportunity career, they can have it. Just let me come along.  We are here now so let's subsidize space development with tax rebate incentives for private money and believe me, they will take us to the Moon, to Mars and anywhere else we want to go.  Why?  It is our human nature, to explore, to develop and to recreate ourselves.  After going to the demonstration or after voting, read my future series and let's get this thing going.  The conservatives will say if you feed everyone, no one would work.  Give me a break. I beg to differ.  If we modeled self-actualization, and saluted it, the process of becoming your best self would be celebrated.

### Tax incentives key to space exploration and industrialization.

Tumlinson, 2005 (Rick, co-founder of the Space Frontier Foundation, “Private Industry Can Help NASA Open the Space Frontier”, Feb. 14, 2005, http://www.bautforum.com/showthread.php/16279-Privatization-of-Space)

Thus we have both a mandate for our government to explore and open space to permanent habitation, and the birth of a private sector space industry which can power, sustain and capitalize that expansion of our civilization beyond the Earth. But of course, this means they will have to work together, which is a bigger challenge than the physical act of opening space itself. But I believe it can be done with benefits to all. However, there is one point that needs to be made early in this discussion that clearly is not understood by the traditional space establishment. I believe the new space frontier movement can survive and even begin the opening of space completely on its own, even if NASA vanished tomorrow. I am not expressing a desire, just a reality that should be part of all future discussions of national space policy. Momentum is building, and the funneling of several independent fortunes into the cause is creating networks of mutual support and interest. For example, we will soon witness the launch of Bigelow Aerospace hotel test articles on a SpaceX rocket. Projecting this trend further, we arrive at another critical milestone on the way to an open frontier, when the first private space facility is serviced and supported entirely by a private transport firm or firms. This is a real take-off point, for when this happens if we should lose the government space program entirely the frontier will still be at hand. I am not stretching reality. At some point in the next 10 years the private sector will attain the ability to transport relatively large numbers of people and payloads to and from low Earth orbit on its own, to house them while they are in orbit and to develop the infrastructure needed for industrial development. This part of the frontier formula is simple: Transportation + Destination = Habitation + Exploitation + Industrialization. As SpaceX and Bigelow begin to develop their infrastructure, Richard Branson, who created Virgin Galactic, will have been flying suborbital commercial space flights for years, as will have Jeff Bezos, the Amazon.com founder who just announced a new commercial spaceport in West Texas. Branson and Burt Rutan, the man behind SpaceshipOne, already have said they want to go to orbit and even beyond, as do Bigelow and Bezos, including trips to and around the Moon. Again, this is serious stuff. I am not wildly chanting L-5 in '95 as the early followers of the late Gerard O'Neill of the Space Studies Institute in their naivete used to do. I am not betting on some pie-in-the-sky magic product like Iridium and the mythical little Leo constellations to fund start up rocket companies. I am certainly not betting on some magic government X vehicle like the X-33 space goose. These new O'Neillians have their own money, their own business models and the ability to finance what they are doing all by themselves. The new imperative that must be faced by our government space leaders is not just to carry out a formal national mandate, and do so on a tight budget, but to maintain their relevance in a field that may well be moving faster than they are. How does NASA justify its intention to spend tens of billions of dollars in taxpayer funds to build what will probably be a far less efficient space transportation system than what the commercial space industry is developing for its own purposes. Look at the contrasts. Bigelow is assuming that his $50 million dollar America's Prize will result in a safe and reusable passenger capsule for roundtrips between Earth and low Earth orbit. NASA is expecting to spend over $10 billion dollars to develop the same sort of capability. Yes, Bigelow expects the winner to spend far more than the actual prize amount based on hopes of follow-on markets; and yes, the winning capsule will have fewer bells and whistles that anything NASA builds, but the magnitude of difference in the development costs is ridiculous. NASA, the White House, and Congress are being driven more by the power of traditional aerospace lobbying and the need to maintain political constituencies than practical and common sense understanding of the changes at hand. NASA must be made to grasp this now and stop all of its current plans for the Moon/Mars initiative, or it will fail. Although the current Crew Exploration Vehicle plans incorporate a very small wedge of new space players, the new White House space transportation policy and the bulk of U.S. government funding is still targeted at the old space industry. How do self- and investor-funded innovators compete against government subsidized systems? How does this help America compete in global markets in the long run? The government is ignoring the need to grow a wide-ranging and robust space transportation and low Earth orbit industrial base to support all of our activities from here to the Moon in favor of drawing up monster space vehicles such as a new heavy-lift launcher. They want to be able to toss giant elements of government-designed space facilities and craft into orbit all at once, a la Saturn 5. This may have been necessary when we were in a race to the Moon, but a much wiser, long-term solution now would be to use smaller vehicles over time to get the people and infrastructure to where they are needed. If the goal is to have a thriving Earth-Moon-Mars economy as an end point, it makes sense to begin creating the low Earth orbit anchorage and industrial port element as early as possible. Pay for delivery contracts and prizes tied to tax incentives for investment in space transportation would greatly accelerate the growth of New Space transportation systems. On orbit assembly would teach us how to really operate in space, while developing expertise and potentially profitable orbital businesses. Fuel depots in space could be developed now using new space and old space transportation systems to fill them and preparing a technology base for the day when we begin to harvest and refine propellants from space resources. Breaking payloads down into small elements expands the pie greatly. It also mimics how we do things on Earth, which seems to have worked very well so far. If handled the right way, even the dinosaurs of aerospace could be coaxed into evolving or spinning off innovative space transportation divisions to service this new mixed private- and public-sector market. After all, Boeing, Lockheed and Northrop Grumman are not doing their stockholders any favors by clinging to a dying market, when an expanding frontier-based market would not only be potentially huge, but by definition infinite.

### Tax incentives solve innovation in space

Aldridge 2004 (Edward Jr. et al, Under Secretary for Acquisition, Technology, and Logistics, at the Department of Defense, June, “A Journey to Inspire, Innovate, and Discover,” Report of the President’s Commission on Implementation of United States Space Exploration Policy, http://www.nasa.gov/pdf/60736main\_M2M\_report\_small.pdf)

Tax Incentives. A time-honored way for government to encourage desired behavior is through the creation of incentives in the tax laws. In this case, an increase in private sector involvement in space can be stimulated through the provision of tax incentives to companies that desire to invest in space or space technology. As an example, the tax law could be changed to make profits from space investment tax free until they reach some pre-determined multiple (e.g., five times) of the original amount of the investment. A historical precedent to such an effort was the use of federal airmail subsidies to help create a private airline industry before World War II. In a like manner, corporate taxes could be credited or expenses deducted for the creation of a private space transportation system, each tax incentive keyed to a specific technical milestone. Creation of tax incentives can potentially create large amounts of investment and hence, technical progress, all at very little expense or risk to the government.

### Taxes are a powerful incentive

Keating 2004 (Raymond J. is chief economist for the Small Business & Entrepreneurship Council , Freeman, [Has a New Era of Space Venture Arrived?](http://www.thefreemanonline.org/featured/has-a-new-era-of-space-venture-arrived/) The Private Sector Has Entered Outer Space October 2004 • Volume: 54 • Issue: 8 http://www.thefreemanonline.org/featured/has-a-new-era-of-space-venture-arrived/)

Finally, why not make space free of taxes? Zero taxes on income and capital gains earned in space, for example, would serve as powerful incentives for space entrepreneurs and investors. The laws of economics are not suspended in the weightlessness of space. If government enforces private property rights and does not regulate or tax heavily, then businesses in space will only be limited by mankind’s ability to invent, innovate, and take risks. Get government out of the way, and June 21, 2004, very well could mark the end of the government space age and the start of the free-enterprise space era.

## ----AT: Links to Coercion/NB

### Not a chance- CP allows any corporation to be tax free in exchange for development and innovation. It exempts the public from having to pay costly budgets for NASA and isn’t coercive – that’s our Hudgins 2004 evidence.

## Prizes 1NC

### Text: The United States federal government should offer a prize of up to 100 million dollars for the first privately owned company which [insert mandates of the plan]

### 100 million solves, provides enough of an incentive for companies to develop technology for space exploration and development

Jobes 2004 (Douglas O president of The Space Settlement Institute. “Will government-sponsored space prizes fly? November 15th http://www.thespacereview.com/article/270/1)

The major news services haven’t picked up the story yet, but Congressman Dana Rohrabacher (R-CA) has already thrown down the gauntlet for the next great space contest: a $100-million government-sponsored space prize. On October 8, Rohrabacher submitted the “Space and Aeronautics Prize Act” ([HR 5336](http://thomas.loc.gov/cgi-bin/query/z?c108:H.R.5336:)) to the U.S. House of Representatives. This legislation calls for the formation of a “Space and Aeronautics Prize” valued at up to $100 million. To claim the prize, a private group must fly a three-person spaceship of their own design to an altitude of 400 kilometers, complete three revolutions around Earth orbit, and return safely. The success of the Paul Allen/Burt Rutan team in flying a privately-funded spaceship just beyond the atmosphere, thus clinching the $10 million Ansari X Prize, brought a surge of new respect for the concept of space exploration prizes. Soon after completion of the X Prize competition, a billionaire named Robert Bigelow announced a $50-million privately-funded “America’s Space Prize” for the first group to fly a private ship to Earth orbit twice within two months. Now, Rep. Rohrabacher is upping the ante with an even more ambitious government-funded competition.

## ----Prizes Solve Space Exploration/Development

### Prizes are Key to the Long Term Sustainability of the Space Program

Foust 2008 **-** editor and publisher of The Space Review (12/8/08, Jeff, The Space Review, “Griffin’s commercialization legacy”, http://www.thespacereview.com/article/1266/1)

The value of prizes: Given that Friday’s speech was part of a ceremony to honor the winner of a NASA-funded prize competition, it was little surprise that Griffin also talked about the prize competitions, both in general and NASA’s Centennial Challenges effort in particular. Prizes have captured considerable interest in the space community—and elsewhere—in recent years, thanks in large part to the $10-million Ansari X Prize and the attention it garnered. That effort not only led to NASA’s own prize program, but also new interest in even bigger prizes, including prizes in the range of $5–10 billion for human missions to the Moon or Mars. Griffin said he favored the use of prizes in general, but not the proposals for billion-dollar Mars prizes. “For example, I think it would be fruitless for the American taxpayer to sponsor multi-billion-dollar prizes for manned missions back to the Moon or to Mars as some prominent members of the chattering class have suggested,” he said, an apparent reference to former House Speaker Newt Gingrich, who has proposed such prizes before. “The high upfront cost and technical complexity of such missions to me renders them unrealistic for a private concern to undertake at this time. It’s an interesting thought experiment, but it’s not an idea which would gain much traction in the real world, in my opinion.” He added that if establishing a human presence on the Moon was a national priority, the US government should be actively pursuing it. “We should not establish a prize for the accomplishment and then sit back and wait to see whether or not it is claimed,” he said. “We should either care enough to make it happen, or not bother.” So when are prizes most effective for NASA or other government agencies? According to Griffin, it’s when such agencies “are actively seeking individuals and companies who would not normally participate in a traditional government procurement process.” He added: “Prizes entice the kind of people who are repelled by the cumbersome nature of government processes.” He cited examples ranging from Charles Lindbergh to Peter Homer, who won a prize in NASA’s astronaut glove prize competition last year. All of these efforts Griffin mentioned in his speech—prizes, COTS, and other purchases of commercial services—touched upon a fundamental theme: the importance of getting the commercial sector involved in order to make NASA’s space exploration effort sustainable over multiple administrations and Congresses. “Those of us on the government side of the space business must recognize a fundamental truth: if our experiment in expanding human presence beyond the Earth is to be sustainable in the long run, it must ultimately yield profitable results, or there must be a profit to be made by supplying those who explore to fulfill other objectives,” Griffin concluded. “We should reach out to those individuals and companies who share our interest in space exploration and are willing to take risks to spur its development.”

### Prizes solve- provide enough of an incentive, and spark investment

Sattler 2005 (Rosanna Partner with Posternak Blankstein & Lund LLP in Boston, Massachusetts. She is a commercial litigator, and chairs the firm's Space Law and Telecommunications Group. Ms. Sattler is a member of the Board of Directors of the US Chamber of Commerce, and she is Chair of the Board of Directors of ProSpace, Inc. She is also a member of the Space Enterprise Council and the Forum on Air and Space Law of the American Bar Association. “SYMPOSIUM: ISSUES IN SPACE LAW: Transporting a Legal System for Property Rights: From the Earth to the Stars +” The University of Chicago Chicago Journal of International Law Summer, 2005 6 Chi. J. Int'l L. 23)

Space holds the promise of vast new opportunities and untapped resources. The Commission recommends that the United States encourage and accelerate the economic development of space. The Commission report lists several incentives that will likely entice private industry to invest their resources and capital in space ventures. Specifically, Recommendation 5-2 recommends that Congress increase the potential for commercial opportunities related to the national space exploration vision by: 1) providing incentives for entrepreneurial investment in space; 2) creating significant monetary prizes for the accomplishment of space missions and/or technology developments; and 3) assuring appropriate property rights for those who seek to develop space resources and infrastructure. [n7](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n7) The Commission suggests creating a one hundred million to one billion dollar prize to be offered to the first private entity to place and sustain humans on the moon for a specified period of time. [n8](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n8) One incentive has already been shown to spark "entrepreneurial investment" in space technologies. In October 2004, the non-profit X-Prize Foundation awarded a ten million dollar Ansari X-Prize to the spacecraft  [\*25]  SpaceShipOne for achieving suborbital flight twice within one week. [n9](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n9) The Commission report estimates that over four hundred million dollars was invested by competitors in developing their technologies, which is a forty to one payoff reward for the development of this technology. [n10](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n10) Corporate sponsors, including M&M Candies, paid an estimated two million dollars to have their logos on SpaceShipOne. Richard Branson, CEO of the Virgin Group, which includes Virgin Airlines and Virgin Records, reportedly agreed to pay up to twenty-one million dollars over the next fifteen years to provide spaceships and technology for a proposed sub-orbital space airline, Virgin Galactic. Discussions are underway for similar deals with four other spaceline operators. [n11](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n11) A director of Virgin Galactic states that the company is prepared to invest another one hundred million dollars to develop this business. The first five-passenger flights are planned for 2008, with ticket prices set at 210,000 dollars. [n12](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n12) The birth of this nascent commercial space tourism industry is supported by President Bush, who on December 23, 2004 signed into law the Commercial Space Launch Amendments Act of 2004. [n13](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n13) This new law will stimulate private investment in sub-orbital space ventures and assist the flight of the American public into space. [n14](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310586383641&returnToKey=20_T12346289687&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.226207.5674402726" \l "n14)

### Prizes solve- encourages private sector space development.

Kalil, 2006 [Thomas, Special Assistant to the Chancellor for Science and Technology at UC Berkeley, Senior Fellow with the Center for American Progress & Former Deputy Assistant to President Clinton for Technology and Economic Policy), “Prizes for Technological Innovation,” The Hamilton Project, The Brookings Institution, Discussion Paper 2006-08, December]

Among all federal agencies, NASA has shown the greatest interest in using prizes to achieve its goals. With the passage of its 2005 authorization legislation, NASA can sponsor a prize of any dollar amount. It can also accept matching funds from the private sector. In 2004, NASA launched the Centennial Challenges program with prizes in several different categories. These prizes range from Flagship challenges that are large enough to encourage major private sector space missions, to Quest challenges designed to get more young people interested in science, technology, engineering, and mathematics. NASA is also teaming with private organizations to sponsor nine competitions for technologies such as flexible astronaut gloves, space elevators, a simulated lunar lander, personal air vehicles, and others. Finally, NASA is exploring another six competitions with prizes totaling fourteen million dollars. The goals include a lunar all-terrain vehicle, low-cost space suits, a lunar night power source, and a micro reentry vehicle capable of returning viable samples from orbital research platforms. For example, to win the Micro Reentry Vehicle Challenge prize of two million dollars, the reentry vehicle must return six of twelve eggs safely to Earth from a starting point of two hundred kilometers above the surface of the Earth (NASA 2006). NASA has been very imaginative in its use of prizes. I propose that it now also move forward with some more ambitious competitions that are under discussion, such as an Earth-Moon solar sailcraft race and a lunar lander-rover. Under this plan, NASA would devote at least one hundred million dollars of its $16.8 billion annual budget to prizes. Assuming that the initial experience is positive and that there are other appropriate ideas for competitions, NASA would eventually allocate 2–3 percent of its annual budget to prizes. Below are two examples of the more ambitious competitions that NASA should pursue: (1) Earth-Moon solar sailcraft race:A fifteen million dollar prize pool would be offered to the first two teams whose solar sailcraft circle the moon and return to a specified Earth orbit. Solar sailcraft would be useful as monitoring stations that would provide advanced warning of solar storms, and for future outer planet or even interstellar missions. (2) Lunar lander-rover:A twenty million dollar prize would be established for the first team to land a robotic rover on the lunar surface that is able to travel ten kilometers and send a video signal back to Earth. It has been more than thirty years since the United States conducted exploration on the surface of the moon, and such a competition could provide NASA with innovative, low-cost technology options for renewed exploration. An analysis conducted for NASA (X PRIZE Foundation 2003) notes that, in 2000, a start-up firm called BlastOff was created to place a robotic explorer on the Moon, but, having been created after the dot-com implosion of the late 1990s, it was not able to raise sufficient funds. A prize would make it easier for entrepreneurial firms to raise the money for this mission by making sponsorships and media sales more attractive to private funders. The two most compelling advantages of prizes, for NASA, are the potential to increase public interest in science and technology, and the possibility of attracting a broader range of researchers and entrepreneurs to work on innovation related to NASA’s work. For example, Team Snowstar, a team of undergraduates from the University of British Columbia who performed the bulk of their work in a dorm room, was voted “most likely to succeed” on the basis of their performance in the 2005 space elevator competition. Given that students have been responsible for Netscape, Yahoo!, Google, Napster, and many other successful technology companies, it is vital to engage students and other nontraditional performers. In the short run, of course, NASA is unlikely to rely on prizes for innovations that are on their critical path for important missions, and will need more experience with prizes before making them a mainstream tool.

### Prizes speed up private sector development.

Sargeant, 2008 (Benjamin, “The Use of Innovation Prizes by the National Aeronautics and Space Administration: An Analysis of Future Possibilities for Fostering Research and Development,” Subcommittee on Space and Aeronautics Committee on Science and Technology U.S. House of Representatives, 7-28, http://www.tcc.virginia.edu/WashIntern/docs/papers/Sargeant\_08\_r.pdf)

Although the progress made thus far by the Centennial Challenges program is significant, NASA has only begun to tap the potential of innovation prizes. The agency has a number of options for improving its current innovation prize program. These include holding several largescale prizes to generate public interest and spur major development, establishing private foundations that would conduct promotional efforts and seek private funding, and using the experience and knowledge of a worldwide community of individual problem-solvers. The program could be expanded to include several large-scale prizes between $10 million and $25 million for a robotic lunar landing, a return of a sample from a near-Earth asteroid, or a human orbital flight (Kalil, 2006, 8; NASA Contests and Prizes, 2004, testimony of Steidle, 23; Leary, 2005). Large-scale prizes often open up follow-on opportunities and new marketable technologies following the competition (Davidian, 2005, 3). These major challenges could spur additional interest in and commitment to developing a robust private spaceflight industry that is capable of assisting NASA with low-Earth orbit operations.

### Companies want NASA prizes – guarantees innovation.

Britt 05 — Senior Science Writer (March 23, 2005, Robert Roy, “NASA Details Cash Prizes for Space Privatization” http://www.space.com/899-nasa-details-cash-prizes-space-privatization.html)

Space industry leaders, including many who are putting their money into programs they know won't pay off for years to come, don't have a solid handle on how commercialization beyond Earth-orbit will pay off. But much of the smart money is on space tourism rather than scientific exploration, satellite deployment or the White House's Mars plans. "There are many more passengers than there are satellites," said Jeffrey Greason, president and CEO of XCOR Aerospace, which is developing a craft it plans to use for transporting paying customers just beyond the fringe of Earth's atmosphere. Other companies are eager to win the NASA prizes to add precious revenue to their start-up companies. Charles Miller, president and CEO of Constellation Services International, plans to compete. His company plans to ultimately deliver cargo into space that will be needed by other missions. "We're not sexy," Miller said. "But the people who made money in the Gold Rush were the guys who sold Levis to the miners. We're the guys who deliver the Levis." Welcome change The new use of NASA funds is a welcome shift to many space experts. Looking back NASA's early successes in human spaceflight and looking forward to more of it, legendary physicist and space colonization visionary Freeman Dyson suggested the space agency has crucial roles to play in the future. "Keep the space science going," the 81-year-old Dyson advised the agency. And "build the infrastructure" and set policies that encourage private enterprise to enter space.

### Incentives to private companies solves best for space exploration.

Jakhu and Buzdugan 08 (Ram and Maria, Professor Kakhu is the chairman of the legal and regulatory committee of international association for the advancement of space safety and a member of the board of the international institute of the space law international astronautical federation, Maria Buzdugan is a member of the institute of air and space law, “Development of the Natural Resources of the Moon and Other Celestial Bodies: Economic and Legal Aspects”, http://www.informaworld.com/smpp/content~db=all~content=a905076663)

The path of gradual commercialization of current space applications, such as launch services, satellite communication services, direct broadcasting services, satellite remote sensing and navigation services, and satellite weather monitoring services, will most likely be followed by future activities of use of space resources. Ventures, like mining the natural resources of the Moon and asteroids, are likely to become technologically feasible in the near future. The question is what would be the most appropriate approach to address the future needs of exploitation of space resources: should it remain the exclusive province of state governments; should the private sector take over such space activities; or should a public-private partnership type of venture be encouraged? As state governments are becoming constrained by budget deficits, an increased reliance on private sector involvement in space activities involving the extraction and use of space resources is to be expected. When deciding whether to invest in commercial ventures of resource use exploitation, any potential private investor will be faced with the issues of economic costs, risks, and perceived regulatory barriers. This study argues that the perceived regulatory barriers, i.e., the licensing requirement, the “common heritage of mankind” principle of international space law, and protection of intellectual property rights, are not obstacles to economic development. Governments should provide both policy and regulatory incentives for private sector participation in the area of space natural resource use by funding basic research and development and by sponsoring liability insurance for private ventures among other incentives.

### 100 million dollar prize solves

Wagner 11 (Erika, Director of X-Prize Foundation, in an interview with Sander Olson, "X-Prize director describes incentive prizes in an interview with Sander Olson", 6/3/11, nextbigfuture.com/2011/06/x-prize-director-describes-incentive.html)

Question: What is the return on investment for the prize? The Ansari X PRIZE provides a good example. A $10 million initial investment led to $100 million in spending by teams, which in turn led to a $1.7 billion investment by private industry. Now the field of private space exploration of space is about to grow exponentially, as a direct result of that initial $10 million investment. Question: Are there any prizes without any purse? Sure, a perfect example is the North American Solar Challenge, which was oriented towards college teams. Despite the fact that there was no financial purse for that prize, the winning team still invested about $4 million dollars in equipment and labor, and an entire ecosystem of technologies and engineers emerged in pursuit of the bragging rights. Question: What is the X PRIZE grand challenges course? Through the X PRIZE Labs program, we teach courses at MIT, the University of Washington and University of Southern California. The classes are designed to teach the theory and practice of prize design. We hope to also be teaching in Bombay and Delhi next year, and a number of other Universities have expressed an interest in training their students how to ask good questions around the world’s biggest problems. Question: Could you describe the process by which the foundation decides which prizes to offer? We primarily use three sources for inspiration. In our X PRIZE Labs, we like to ask our students "if you had $10 million to invest in an X PRIZE, what would you ask the world to achieve?". Second, we have an annual Visioneering event, in which we bring together 100 of the brightest minds that we know to help us understand what they see as the most pressing opportunities for innovative breakthroughs. Third, we have corporate clients suggest challenges to us. So for instance, we are now working with Qualcomm on a prize for an AI physician's assistant that can diagnose diseases as well as board-certified physicians. Question: What X PRIZE excites you the most? The X PRIZE Lab@MIT developed a competition several years ago in the field of global health. After deep dives into a number of pressing problems, our students identified tuberculosis diagnostics as an area that could benefit from an X PRIZE. The current method we have for identifying TB patients is 100 years old and only accurate about 50% of the time. A cheaper, more accurate TB test for use in the developing world could save hundreds of thousands of lives per year. I would love to see a competition that brought dozens of universities, biotech firms, and medical innovators to help address this challenge. Question: What are the operational costs of running an X PRIZE? The rough rule of thumb is that the operational costs are equal to the prize costs. So to have a $10 million prize costs us around $20 million total. This is because there are costs related to research, supporting infrastructure, judges, personnel, media attention, and so forth. Question: Who decides the terms of the prize? For each prize that we offer, we have a team of advisors. We are currently designing an X PRIZE for autonomous vehicles, and we have a team of experts from the auto industry, robotics, racing, and even public relations who are providing input. We don't want to create a prize that could be won tomorrow, but an impossible challenge won’t attract the world’s best innovators either. It’s finding that intersection of audacity and achievability that’s the key to a successful X PRIZE. Question: How many x-prizes are currently active? There are two X PRIZEs and one smaller X CHALLENGE that are active today. The Archon Genomics X PRIZE offers $10 million for sequencing 100 genomes in 10 days. The Google Lunar X PRIZE gives $30 million for the first private lunar rover broadcast back HD video from the surface of the moon. The Wendy Schmidt Oil Cleanup X CHALLENGE focuses on the next generation of oil spill cleanup technology. Question: So the funding for prizes comes from corporate and philanthropic sources? Funding comes from corporate, philanthropic, and Government sources. There are actually over $300 million in large prize purses up for grabs around the world. The Obama administration put out a policy directive last year stating that Federal agencies should consider prizes as part of their incentive portfolio. So federal agencies are now using prizes as well as grants and contracts. Corporations are using prizes for incentivizing internal innovation, as in the Cisco iPrize; for crowdsourcing solutions to pressing corporate challenges, as in the Netflix Prize; and for raising awareness around industry issues, as in the Progressive Insurance Automotive X PRIZE. Question: Is there any particular technology for which an —X PRIZE should be offered but isn't? There are many worthy candidates that we are currently exploring. We are looking at autonomous cars, deep sea exploration platforms, clean cookstoves for the developing world, brain-computer interfaces, carbon capture and reuse technologies, energy storage, and many others. There is no shortage of promising areas that could directly benefit from incentivized competition. Question: If you had a billion dollars to invest in any technology, how would you spend it? Prizes aren't good for stimulating basic science, and we need to have a strong science infrastructure in this country. I am a passionate advocate of human space exploration, especially when we ask in what ways these capabilities can directly benefit humanity. So I would invest in a mix of basic R&D, social entrepreneurship, and high-risk technology programs that push our frontiers of knowledge and physical exploration. Prizes would definitely be part of that portfolio. Question: Are there any foreign prizes offered? Yes, a perfect example is the Saltier Prize in Scotland. Scotland wants to be a leader in the field of wave and tidal energy, so they offered a large prize for advancements in that area. Another example is the Ibrahim prize, which is offered by the Mo Ibrahim foundation. This prize offers a multimillion dollar reward for effective African leaders who peacefully step down from office when their term ends. The X PRIZE Foundation has just opened an office in India, and there are plans for new X PRIZE Labs at foreign universities as well. Question: It seems as if the X PRIZE concept has grown exponentially over the last 10 years. The X PRIZE has grown from a single prize, the Ansari X PRIZE, to over $65 million in prizes. That number continues to grow. Industry is becoming increasingly interested in the concept of using prizes to spur technological innovation and to solve specific problems. Question: What do you see as the most disruptive technology to be developed during the next decade? I personally think the field of energy storage is critically important, because it in turn affects so many other fields. Half the prizes that I've examined are energy limited. In everything from exoskeletons to deep sea exploration to electric cars and aircraft, energy storage is a serious limiter to numerous innovations. In order to make renewable energy feasible, we have to devise better ways to store energy. But the beauty of the X PRIZE is that we don't have to pick any particular technologies - we simply offer the prizes and let the competition begin.

## ----Prizes Solve Asteroids

### Prizes solve Asteroid Detection

Diamandis 2008 (Peter, Chairman and CEO of X Prize foundation, “Re-establishings NASA’s Leadership” December 12 http://www.huffingtonpost.com/peter-diamandis/re-establishing-nasas-lea\_b\_150297.html)

Incentive prizes have a lengthy track record of enabling radical breakthroughs for very low costs. Governments have long been the beneficiaries of the work done to win incentive prizes, from the Longitude Prize of the 1700s to the contemporary [Northrop Grumman Lunar Lander Challenge](http://space.xprize.org/lunar-lander-challenge" \t "new) and DARPA Grand Challenges. Additionally, NASA and its peer agencies can benefit even from prizes offered by external bodies, by becoming customers of the products and services that emerge from the prize competitors. NASA should proactively seek to benefit from incentive prizes, both by offering prizes of its own and by seeking to actively engage in commerce with the teams who compete for and win prizes offered by others. To do so, NASA should supplement the prize purse funds available to Centennial Challenges, and should allow for the creation of larger value prizes such as competitions for suborbital point-to-point spaceflight, asteroid detection, end beamed power launching systems. Additionally, NASA should begin identifying both areas of need and contractual mechanisms needed to benefit from private companies participating in prizes such as the [Google Lunar X PRIZE](http://www.googlelunarxprize.org" \t "new). Finally, NASA should seek out ways to benefit from and strengthen existing prizes such as the Google Lunar X PRIZE by funding related educational programs, prize purses, or other associated programs.

## ----Prizes Solve- Colonization

### 100 million in prizes makes going to the Moon/Mars Profitable- Private sector will develop the tech.

Space Settlement institute 2010 (Space settlement prize act, http://www.space-settlement-institute.org/space-settlement-prize-act.html)

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| --- |
| The Space Settlement Prize Act is a draft law proposed by The Space Settlement Institute that would create, at no cost to taxpayers, a multi-billion dollar incentive for private companies to finance and build permanent settlements on the Moon and/or Mars. Included in the legislation is the requirement that these companies build an Earth-Moon or Earth-Mars space line open to all paying passengers. One thing has become very clear in the last 30 years. For the space frontier to be opened in our lifetimes, private enterprise must begin to invest heavily in space development very soon. It is obvious the government cannot, or will not, help humanity settle space - even if their intention were to do so. At best, NASA may help us get there; the rest will be up to the private sector. |

The only way to interest investors in building space settlements is to make doing so very profitable. No company can throw billions into a project without a huge profit waiting down the line. Even if they could convince investors to do it, the companies that tried would obviously go bankrupt.

## ----Prizes Solve – Human Missions

### Prizes solve person space flight

Diamandis 2008 (Peter, Chairman and CEO of X Prize foundation, “Re-establishings NASA’s Leadership” December 12 http://www.huffingtonpost.com/peter-diamandis/re-establishing-nasas-lea\_b\_150297.html)

Incentive prizes have a lengthy track record of enabling radical breakthroughs for very low costs. Governments have long been the beneficiaries of the work done to win incentive prizes, from the Longitude Prize of the 1700s to the contemporary [Northrop Grumman Lunar Lander Challenge](http://space.xprize.org/lunar-lander-challenge" \t "new) and DARPA Grand Challenges. Additionally, NASA and its peer agencies can benefit even from prizes offered by external bodies, by becoming customers of the products and services that emerge from the prize competitors. NASA should proactively seek to benefit from incentive prizes, both by offering prizes of its own and by seeking to actively engage in commerce with the teams who compete for and win prizes offered by others. To do so, NASA should supplement the prize purse funds available to Centennial Challenges, and should allow for the creation of larger value prizes such as competitions for suborbital point-to-point spaceflight, asteroid detection, end beamed power launching systems. Additionally, NASA should begin identifying both areas of need and contractual mechanisms needed to benefit from private companies participating in prizes such as the [Google Lunar X PRIZE](http://www.googlelunarxprize.org" \t "new). Finally, NASA should seek out ways to benefit from and strengthen existing prizes such as the Google Lunar X PRIZE by funding related educational programs, prize purses, or other associated programs.

## ----Prizes solve Space Tourism

### Prizes solve space tourism

Brannen 2010,( Thomas J.D. Candidate, Southern Methodist University Dedman School of Law, Summer, “Private Commercial Space Transportation’s Dependence on Space Tourism and NASA’s Responsibility to Both,” Journal of Air Law and Commerce, p.652)

With the simplifications of regulatory requirements, the success of space prizes, and the gains in technology and innovation, space tourism is now finally building momentum. New spaceports are being built, old airports are being transitioned into spaceports, new RLVs are rapidly being developed, environmental regulations are being streamlined for simpler and quicker licensing procedures, and NASA is finally handing the reins of suborbital human transportation over to private entrepreneurs so it can focus on grander missions. Most importantly, the combination of efficiency, competition, and economies of scale has finally translated into lower prices for commercial launches, extending space access beyond merely the wealthy.

## ----Prizes Solve- R and D

### Monetary prizes solve incentives for new research.

Charlton and Andras, 2008 (Bruce G. Editor-in-Chief and Peter Editorial Advisory Board, Medical Hypotheses, Newcastle University, , “Stimulating revolutionary science with mega-cash prizes,” Medical Hypotheses, http://medicalhypotheses.blogspot.com/2008/03/mega-cash-prizes-for-revolutionary.html

Given that revolutionary science is a high risk endeavour which usually fails; it is likely to thrive only when the incentives rewarding the rare instances of success are greater than for normal science. Therefore we would argue that it is insufficient for successful revolutionary scientists merely to get the usual rewards of prestigious professorships, respect from within the scientific profession, and a modestly high level of reasonably secure income. Something more is needed: lots of money. The money incentive in science To compensate for the intrinsically greater risk of failure, successful revolutionaary science requires greater rewards than normal science; rewards such as higher prestige, better jobs and/or more money. We suggest that more money is the most promising incentive to encourage revolutionary science, because it is the factor which is most-controllable.

## ----AT: Prize Too Small

### We have specific solvency- 100 million dollars is enough for investment pay off that’s the 1NC Jobes Evidence

### One large prize solves best.

Charlton and Andras 2008, (Bruce G. Editor-in-Chief and Peter Editorial Advisory Board, Medical Hypotheses, Newcastle University, , “Stimulating revolutionary science with mega-cash prizes,” Medical Hypotheses, http://medicalhypotheses.blogspot.com/2008/03/mega-cash-prizes-for-revolutionary.html

This could be accomplished by a change in behaviour of the large grant awarding bodies – a shift from funding research programs with grants and towards rewarding successful revolutionary science with prizes. For example, a research foundation working in a specific scientific field might at present spend 100 million dollars per year – and might spread this money among ten 10 million dollar program grants. In all likelihood, this money will at present be spent on normal science, and will produce modest incremental progress. We are suggesting that such a research foundation might instead spend 100 million dollars in a single prize, awarded to a relatively young scientist or a few scientists in recognition of a significant success in revolutionary science.

## Phase Out NASA 1NC

### Text: The United States federal government should phase out the duties and responsibilities of the National Aeronautics and Space administration, should prevent NASA from building, launching or operating space vehicles and lunar exploration equipment, require that NASA aquire all scientific data from private firms and require that all other non-emergency launches, exploration and development equipment be purchased from the private sector. The United States federal government should sell off the United State’s portion of the International Space Station.

### CP Solves your aff- allows for private market development while ending NASA involvement

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

But the most important way to help the commercial space sector is to continue to push NASA out of activities that can be provided privately, restricting the agency as much as possible to its original mission of exploration and science until the agency can be phased out. To that end, Congress, in legislation or oversight and enforcement of current laws, should do the following things. Bar NASA from Building and Operating Launch Vehicles and Require All Other Nondefense Launches and All Nonemergency Defense Launches to Be Purchased from the Private Sector Even as a market for private-sector launch services grows, NASA is still addicted to developing expensive hardware, like the problem-plagued X-series vehicles, while spending very small amounts on actual science. In addition to being barred from carrying shuttle cargoes that can be privately launched, NASA and all other government agencies should be required to contract out all launches. The Pentagon ought not to be exempt from the push to privatize. The Defense Department clearly should continue to own and control intercontinental ballistic missiles that might need to be launched at a moment’s notice. But many defense functions, such as remote sensing with satellites that require launch services, are planned years in advance. There is no reason why launches for such systems could not be secured from the private sector. The U.S. government should not be in competition with the private sector in those services any more than it should be competing in trucking or air travel. Enforce the Commercial Space Act Requirement That NASA Acquire Scientific Data from Private Firms Far more valuable from a scientific perspective than the space station and shuttle have been the planetary probes overseen by the Jet Propulsion Laboratory in California, which is under NASA but has considerable independence. Although costs for the probes are not as high as those for the shuttle or the station, the arrangement is still wasteful and politicized. For example, 60 percent of the support contracts that the laboratory issues to the private sector are reserved for minority contractors. Rather than build their own probes, even if they are carried into space by private launchers, the Jet Propulsion Laboratory and other NASA or government agencies should allow scientists to purchase data from the private sector. In effect, as part of a builddown of NASA, government science agencies would set a price for certain data and allow privatesector providers to compete with one another to acquire the data in a costeffective manner that would allow them to make a profit. That approach was considered for one of the toughest possible projects. In 1987– 88 an interagency U.S. government working group considered the feasibility of offering a one-time prize and a promise to rent to any private group that could deliver a permanent manned Moon base. When asked if such a station was realistic, private-sector representatives answered yes, but only if NASA stayed out of the way and did not force the private providers to use the shuttle or the proposed station. Needless to say, that approach never bore any fruit. It has been revived by Zubrin, who suggests that offering a $20 billion prize might be the best way to fund a manned mission to Mars. Eliminate ‘‘Mission to Planet Earth,’’ or Turn It Over to Other Government Agencies and Contract with Private Providers for All Data Services NASA in recent years has seen environmental projects as potential cash cows. It has fought with other agencies— through its Mission to Planet Earth, a project to study Earth’s ecology— for jurisdiction over satellites to monitor the environment. Typical of its tactics, in February 1992 NASA made screaming headlines with its announcement that a huge ozone hole could be in the process of opening over the Northern Hemisphere. In fine print, the data were skimpy at best. Still, the agency got the politically correct headlines as well as funding. There were few headlines months later when no ozone hole developed. The mission itself is of questionable value. It seems to be aimed at selectively acquiring data to push politically correct agendas. Even if the mission is not shut down, it does not belong in NASA’s portfolio. Some other department should direct the project. And if the government needs data, it should take bids from the private sector to provide those data.

## ----Ext. Phase Out Solves Private Investment

### Phasing out NASA is stimulates vital private sector involvement -- solves the case.

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

But what is really needed in the 21st century is a strategy to back the government out of civilian space activities and allow imaginative private sector ideas to flourish. For example, the shuttle's 17-story-tall external fuel tanks currently are flown 98% of the distance into orbit before they are pushed back toward the ocean and break up as they reenter the atmosphere. But the external tanks could be put into orbit. With nearly 100 shuttle flights to date, 100 platforms -- with some 27 acres of total interior space, as much as the Pentagon -- could have been in orbit today, ready to be homesteaded by entrepreneurs for hotels or honeymoon suites. Of special significance, private firms are beginning to develop a space tourism industry. For example, the X Prize Foundation of St. Louis is raising $ 10 million to award to the first entrepreneur who sends a craft capable of carrying three persons at least 100 km. (62 mi.) into space and returning it to Earth twice in a two-week period. The first contender to test a vehicle that could go for the gold is Burt Rutan. He designed the first plane to fly around the world nonstop without refueling, in 1986. But ultimately, space enthusiasts will have to address the future of NASA's shuttles and space station. Governments never will deliver services as well as the private sector, reacting to the needs of paying private customers. A transition could involve NASA purchasing data from the private sector rather than building more hardware. The private contractor now in charge of shuttle launch preparations could be allowed to rent the shuttle for private missions. It ultimately will involve selling off the shuttle as well as the station. The technical skills of many who work for NASA are formidable. The ability of private entrepreneurs to offer new and ever-improving services at ever-falling costs is seen in the information revolution and U.S. history. The sooner the government allows the former to join the latter and frees the latter from regulatory restrictions, the sooner the U.S. will have a space sector appropriate for the new millennium.

### Phase out allows for a transition to privatization

Hudgins 2004 (Edward, formerly director of regulatory studies for the Cato Institute and editor of *Regulation* magazine, is an expert on the regulation of space and transportation, pharmaceuticals, and labor. He served as a senior economist for the Joint Economic Committee of the U.S. Congress and was both deputy director for economic policy studies and director of the Center for International Economic Growth at the Heritage Foundation, “return to the moon? Not with this NASA,” The Atlas Society, http://www.atlassociety.org/return-moon-not-nasa)

Governments simply cannot commercialize goods and services. Only private entrepreneurs can improve their quality, bring down prices, and make them accessible to all individuals—including cars, airline trips, computers, the Internet, you name it. Thus to avoid the errors of the shuttle and space station, NASA's mission must be very narrowly focused on exploring the Moon and planets and perhaps conducting some very basic research, which also might serve a defense function. This will mean leaving low Earth orbit to the private sector. The shuttle should be given away to private owners; the United Space Alliance, the joint venture between Boeing and Lockheed-Martin that refurbishes the shuttle between flights, would be an obvious candidate. Let a private owner fly it for paying customers—including NASA if necessary—if it is still worth flying.

## ----Ext. Phase Out solves Space

### Phasing out NASA key to future exploration.

Fong, 2010 [Kevin, Co-director of the [Centre for Aviation Space and Extreme Environment Medicine](http://en.wikipedia.org/w/index.php?title=Centre_for_Aviation_Space_and_Extreme_Environment_Medicine&action=edit&redlink=1), Senior lecturer in physiology -- University College London, “To boldly go to a commercial space age,” [guardian.co.uk](http://www.guardian.co.uk/), 4-16, http://www.guardian.co.uk/commentisfree/cifamerica/2010/apr/16/nasa-apollo-private-industry-commercial]

Armstrong's message is that if you have a vision you've got to stick with it, believe in it and resource it properly. True; but it's the resource that is the forcing issue here. In embracing the commercial sector Nasa looks to solve the problem of sustainability, hoping that private contractors can drive down the cost of access to space. If it works this will be a game changer, leaving private industry to do the donkey work of hauling people and payload into low Earth orbit while Nasa gets on with the business of developing new, advanced exploration technologies. If the US wishes to continue its human space exploration endeavours in this century it must find a new, more sustainable strategy and commercial providers hold the key to this***.*** The question is not "if" but "when" they should start to rely upon private industry to do some of the things that their national space agency used to. Getting the timing wrong would decimate Nasa's army of aerospace engineers, leave their astronauts without a ride and irreversibly damage their space exploration capabilities. The direction in which Obama is taking Nasa is new, bold and necessary in the long run. The plans lack nothing in the way of vision but risk a great deal in their potential pre-maturity. It is this that Armstrong fears and with good reason. But if Obama can negotiate this risk, and find a rational way to smooth the transition from old to new, then what we will witness is not the end of an era but the birth of a new space age.

### Phasing out NASA is the only way to have successful space missions.

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

NASA administrator Daniel Goldin has struggled to bring greater efficiency to his agency and find innovative ways to overcome bureaucratic inertia. But he is like the former Soviet Union’s Mikhail Gorbachev, trying to save his failed system by introducing limited market reforms when what is really needed is a real free market. People who believe that mankind has a future in space should think deeply and seriously about how to ease the government out of civilian space activities. Only by approaching this challenge with the same honesty and clarity of mind that were needed to put men on the Moon can Mars and other future goals be attained.

## ----Ext. Phase Out Solves- Moon Missions/Mining

### Phasing out NASA revitalizes private sector development -- key to moon exploration.

Lamassoure et al., 2003 (Elisabeth, a member of the Mission Systems Concepts section at the Jet Propulsion. Laboratory. Bradley R. Blair, Javier Diaz, Mark Oderman, Michael B. Duke, Marc Vaucher, Ramachandra Manvi’, and Robert W. Easter “Evaluation of Private Sector Roles in Space Resource Development” <http://trs-new.jpl.nasa.gov/dspace/bitstream/2014/10473/1/02-2470.pdf>)

A number of studies have shown the great potential space resource utilization holds for space exploration. For example, Duke (1998) analyzed possible lunar ice extraction techniques. A study by NIAC (Rice, 2000) showed how using this ice to produce H2/02 propellants would reduce the Earth launch mass (ELM) for a reference lunar outpost mission by up to 68%. Based on similar outpost assumptions, Nelson (2001) calculated how much a private venture must charge to transfer cargo and astronauts to the Moon. Borowski (1997) studied the lunar transportation improvements that nuclear thermal propulsion could provide. Considering low Earth launch costs, Stancati (1999) showed that using lunar-based LOX and LH2, and nuclear thermal propulsion, ELM for space exploration could be improved by up to 51%, but cost improvements would be negligible. These are only a few examples of the wealth of interesting engineering studies that characterize what we might call the “potential for space resources supply”. A few studies also characterized the “potential for space resources demand”. Outstanding examples include the commercial space transportation study (CSTS, 1994), which systematically quantified potential markets for future launch services; but also propellant demand studies such as Smitherman (2001), who quantified the demand for H2/02propellants in low Earth orbit (LEO) for LEO-to-GEO (geostationary) Earth orbit transfer. Between these two bodies of research and analysis, there is a clear gap: among all the architectures proposed for space resources development, do any suggest (financially) viable private ventures? An integrated financial and engineering model based on a private investor perspective is the only way to bridge this gap, for three main reasons: First, an engineering-optimized architecture is not necessarily the most interesting to a private investor. For example, economies of scale could lead the engineer to build upfront the capacity to meet optimistic demand growth; while the private investor might prefer a scalable architecture, building capacity only as demand increases. Second, the metrics that interest private sector investors differ are not always the same ones that public sector engineers use for economic analyses. A ‘business case analysis’ is required to translate the engineering costs estimates into the metrics of interest to private sector investors. Third, an informed and effective public policy and strategy for space exploration demands that architecture trades, and initiatives regarding the private sector assess a wide range of scenarios. A single business case yields an outcome that depends on specific assumptions. For NASA to effectively incorporate the private sector into its long- term plans, it should explore a wide range of potential space ventures, the conditions under which they would flourish, the steps that NASA can take to encourage them, and the public benefitdcosts of those steps. To make these numerous case studies fast, accurate and comparable, a common analytic framework is needed.

## ----Ext. Phase out Solves- Sell off ISS

### Government should sell of the ISS- allows for the development of a Free Market

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

Since construction has already begun, it is unlikely that political leaders will have the will to scrap the station. A second-best option would be to sell the station to private purchasers upon completion and allow the private sector to provide and pay for all future travel to and from the station as well as station operations, maintenance, and expansion. The station will have to be sold at a loss, but at least taxpayers will not continue to lose money on its operation. With unsubsidized private management, a real market, based on the actual costs for private launchers to transport payloads and technicians to the station, will develop. The prices for use of the station will change with real costs. Thus, for example, the price of space on the station may start low, but, as launch costs come down, greater demand for space will cause its value and price to rise. Most important, station policy will not be determined by politics or bureaucratic power. Rick Tumlinson, president of the Space Frontier Foundation, suggests a variation of that approach. While still involving government funding, his Alpha Town approach contains elements to help create markets in space. The station’s owners (i.e., the countries that are participating) would create a station authority, similar to a port authority. NASA would not be the U.S. government’s representative on the authority though it could be a customer or tenant on the station. That authority initially would provide infrastructure, safety, utilities, and a regime that would allow private parties to run commercial operations on the station. The private sector could take over even those functions at some point. The authority would not be allowed to finance any station business operations, to expand into unrelated businesses, or to own any stock in station contractors. Those restrictions also would apply to NASA itself. In addition to commercial activities, the private sector would provide and pay for all future travel to and from the station, station operations, maintenance, and expansion. Another provision of the Alpha Town approach would force NASA to sell off rather than scrap unused assets. For example, each shuttle flies 98 percent of the way to orbit with an external fuel tank the size of a 17- story building. Once the nontoxic liquid oxygen and hydrogen from those tanks burn off, the tanks are dropped into the ocean. If they were placed in orbit, with some 100 shuttle flights to date, there would be 100 platforms— with nearly 30 acres of interior space, about the size of the Pentagon— waiting to be sealed and ‘‘ homesteaded’’ by private owners for scientific experiments, space hotels, or any other activity of which an entrepreneur could conceive. But NASA currently has no incentive to create competition for its own space station by placing those tanks in orbit for private use. Those approaches to privatization are similar to the approach used to privatize assets in formerly communist countries. Putting assets in private hands best guarantees their profitable use. Thus, future expansion of the station would occur only in response to market demands rather than bureaucratic dictates and would be paid for by customers, not taxpayers. If done right, such privatization would help to create a true market for space services.

### Selling of the ISS and phasing out NASA solves the problems with costly space exploration

Hudgins 2004 (Edward, formerly director of regulatory studies for the Cato Institute and editor of *Regulation* magazine, is an expert on the regulation of space and transportation, pharmaceuticals, and labor. He served as a senior economist for the Joint Economic Committee of the U.S. Congress and was both deputy director for economic policy studies and director of the Center for International Economic Growth at the Heritage Foundation, “return to the moon? Not with this NASA,” The Atlas Society, http://www.atlassociety.org/return-moon-not-nasa)

NASA also should give up the money-draining space station, and sooner rather than later. The station might be turned over to the international partners or, better still, to the mostly private Russian rocket company, Energia, and the western investors who were in the process of commercializing and privatizing the Mir space station before the Russian government brought it down for political reasons. If need be, NASA can be a rent-paying station tenant.   NASA centers that drive up its budget but do not directly contribute to its mission should be shut down. If the government wants to continue satellite studies of the climate and resources or other such functions, they could be turned over to other agencies like the EPA and Interior Department.   NASA and the rest of the government should contract for launch services with private companies, which would handle transportation to and from low Earth orbit. Contracting with private pilots with private planes is what the Post Office did in the 1920s and 30s, which helped the emerging civil aviation sector. Further, to facilitate a strong private space sector, the government needs to further deregulate launches, export licensing, and remove other barriers to entrepreneurs.

## ----Ext. Phase Out Solves- Buy Data from Private Sector

### Purchasing data from the private sector solves

Worden, 2004 [Simon, Brigadier General (USAF, Retired), a Fellow in the office of Senator Sam Brownback on detail from the University of Arizona where he is a Research Professor of Astronomy, was Director of Transformation at the Space and Missiles Systems Center, Los Angeles Air Force Base. As the staff officer for initiatives in the first Bush administration's National Space Council, he spearheaded efforts to revitalize our civil space exploration and earth monitoring programs. General Worden has written or co-authored more than 150 technical papers in astrophysics, space science and strategic studies. He was scientific co-investigator for two NASA space lab missions, Marshall Institute, “Private Sector Opportunities and the President’s Space Exploration Vision” 4-7, http://www.marshall.org/pdf/materials/230.pdf]

The first “different” private sector aspect is that NASA and other government agencies can contract for services rather than systems. There is a model here that the Department of Defense has used with great success, and as a former Air Force officer I must reluctantly commend the Navy. The Navy has something called the UFO, Ultra-High Frequency FollowOn communications satellites. (So the X-files TV show really is right, the government does have UFOs!) The Navy bought these communications capabilities as services rather than systems. The systems themselves weren’t developed by a government program office, but were built by the private sector to provide the services the Government contracted for. This is an example of more private sector involvement in the sense that government money is spent in a different manner. It is a step in the private direction, but only a small one. It is a first way to involve the private sector in a different manner than traditional contracting. NASA has not used it much, although there have been a few examples such as the Lunar Prospector that were done on this sort of model.

## Private Property Courts 1NC

### Text: The United States federal judiciary should hold that all private entities who establish a permanent, privately funded space settlement and space line are able to claim ownership of a substantial share of that land.

### CP Solves- private investment key

Space Settlement institute 2010 (Space settlement prize act, http://www.space-settlement-institute.org/space-settlement-prize-act.html)

The problem continues to be that there have been proposed no conceivable ventures in space that would return billions of dollars in any reasonable timeframe. Space solar power, asteroid or Lunar mining, space tourism, and so on will one day be viable businesses. But without the existing space infrastructure, which will cost billions to construct, building a hotel on the Moon right now would be like building a hotel in the Sahara Desert - only it would be a lot harder to get to. Constructing the missing space infrastructure - the gas stations, supply depots, repair shops, and rest stops on the Earth-Moon and Earth-Mars superhighways - that is the enabler for humanity's expansion into the Solar System. There is actually one asset in space that could produce a multi-billion dollar return for investors, if the proper laws were in place to enable ownership. The most potentially valuable asset on the Moon and Mars is the land itself, as real estate. Someday in the future, once there is a true permanent settlement, regular commercial access, and a system of space property rights, Lunar and Martian real estate will acquire a multi-billion dollar value. However, the incentive is obviously needed now, to spark the outward push, not later after settlement has already happened.

### And courts are critical- US needs to promise that the Courts will uphold ownership

Space Settlement institute 2010 (Space settlement prize act, http://www.space-settlement-institute.org/space-settlement-prize-act.html)

The U.S. needs to promise, now, that when and if anyone succeeds in establishing a permanent, privately funded space settlement and space line, U.S. courts will accept the settlement's claim to ownership of a substantial share of that land. This concept has come to be known as "land claims recognition". (Incidentally, the same incentive would also apply to asteroids and any other object on which a permanent space settlement could be built.) Official recognition by U.S. Courts of a private claim of land on the Moon or Mars (based legally on the occupation and use by a permanent settlement) would allow the settlement to sell deeds to their Lunar land back on Earth. This could begin as soon as - but not before - the actual settlement and space line was built. The settlement company could sell to those who intend to book passage on the settlement's ships and use their land, but also to the much, much larger market of land speculators and investors who hope to make a profit on Lunar land deeds, without ever, themselves, leaving Earth.

## Private Property 1NC

### The United States federal government should bar all non-corporate entities from establishing property rights in outer space.

### CP Solves- private investment key

Space Settlement institute 2010 (Space settlement prize act, http://www.space-settlement-institute.org/space-settlement-prize-act.html)

The problem continues to be that there have been proposed no conceivable ventures in space that would return billions of dollars in any reasonable timeframe. Space solar power, asteroid or Lunar mining, space tourism, and so on will one day be viable businesses. But without the existing space infrastructure, which will cost billions to construct, building a hotel on the Moon right now would be like building a hotel in the Sahara Desert - only it would be a lot harder to get to. Constructing the missing space infrastructure - the gas stations, supply depots, repair shops, and rest stops on the Earth-Moon and Earth-Mars superhighways - that is the enabler for humanity's expansion into the Solar System. There is actually one asset in space that could produce a multi-billion dollar return for investors, if the proper laws were in place to enable ownership. The most potentially valuable asset on the Moon and Mars is the land itself, as real estate. Someday in the future, once there is a true permanent settlement, regular commercial access, and a system of space property rights, Lunar and Martian real estate will acquire a multi-billion dollar value. However, the incentive is obviously needed now, to spark the outward push, not later after settlement has already happened.

## ----Ext. Property Rights key to Investment

### Property rights key to private sector investment

Keating 2004 (Raymond J. is chief economist for the Small Business & Entrepreneurship Council , Freeman, [Has a New Era of Space Venture Arrived?](http://www.thefreemanonline.org/featured/has-a-new-era-of-space-venture-arrived/) The Private Sector Has Entered Outer Space October 2004 • Volume: 54 • Issue: 8 http://www.thefreemanonline.org/featured/has-a-new-era-of-space-venture-arrived/)

Finally, the importance of property rights was acknowledged. The report noted that the 1967 UN Treaty on Peaceful Uses of Outer Space, which the U.S. government signed, prohibits claims of national sovereignty on any extraterrestrial body. Moreover, the 1979 Moon Treaty disallows any private ownership on the moon. The commission reported that the United States “has not ratified the 1979 Moon Treaty, but at the same time, has not challenged its basic premises or assumptions.” As a result, “the legal status of a hypothetical private company engaged in making products from space resources is uncertain.” The commissioners observed: “Potentially, this uncertainty could strangle a nascent space-based industry in its cradle; no company will invest millions of dollars in developing a product to which their legal claim is uncertain.” The report concluded that if property rights are not addressed appropriately, “there will be little significant private sector activity associated with the development of space resources, one of our key goals.”

# ==== Privatization Solves ====

## Privatization Solves- Space Exploration

### Private sector key to sustained financial commitment which makes space exploration possible

Schmitt 2003 (Hon. Harrison H doctorate in Geology from Harvard, was accepted into NASA’s Scientist-Astronaut program in 1965. In 1972, he served on the three-man crew of Apollo 17, the last U.S. mission to the moonSenate Committee of Commerce INTERLUNE-INTERMARS INITIATIVE, INC. Testimony of Hon. Harrison H. Schmitt: Senate Hearing on "Lunar Exploration" November 6, http://www.spaceref.com/news/viewsr.html?pid=10924)

Most important for a new NASA or a new agency would be the guarantee of a sustained political (financial) commitment to see the job through and to not turn back once a deep space operational capability exists once again or accidents happen. At this point in history, we cannot count on the Government for such a sustained commitment. This includes not under-funding the effort - a huge problem still plaguing the Space Shuttle, the International Space Station, and other current and past programs. That is why I have been looking to a more predictable commitment from investors who have been given a credible business plan and a return on investment commensurable with the risk. Attaining a level of sustaining operations for a core business in fusion power and lunar resources requires about 10-15 years and $10-15 billion of private investment capital as well as the successful interim marketing and profitable sales related to a variety of applied fusion technologies. The time required from start-up to the delivery of the first 100 kg years supply to the first operating 1000 megawatt fusion power plant on Earth will be a function of the rate at which capital is available, but probably no less than 10 years. This schedule also depends to some degree on the U.S. Government being actively supportive in matters involving taxes, regulations, and international law but no more so than is expected for other commercial endeavors. If the U.S. Government also provided an internal environment for research and development of important technologies, investors would be encouraged as well. As you are aware, the precursor to NASA, the National Advisory Committee on Aeronautics (NACA), provided similar assistance and antitrust protection to aeronautics industry research during most of the 20th Century. A business and investor based approach to a return to the Moon to stay represents a clear alternative to initiatives by the U.S. Government or by a coalition of other countries. Although not yet certain of success, a business-investor approach, supported by the potential of lunar Helium-3 fusion power, and derivative technologies and resources, offers the greatest likelihood of a predictable and sustained commitment to a return to deep space.

### Privatization solves space exploration –Government control uniquely bad

Garmong 2004 (Robert, Ph.D. in philosophy, was a writer for the Ayn Rand Institute from 2003 to 2004. The Institute promotes the philosophy of Ayn Rand, author of [Atlas Shrugged](http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B) and [The Fountainhead](http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B). “Privatize Space Exploration: The Free-Market Solution For America's Space Program,” June 27th Capitalism Magazine http://www.capitalismmagazine.com/science/space/3763-privatize-space-exploration-the-free-market-solution-for-america-039-s-space-program.html)

SpaceShipOne, the first privately funded manned spacecraft, shattered more than the boundary of outer space: it destroyed forever the myth that space exploration can only be done by the government. Just a week earlier, a Bush Administration panel on space exploration recommended that NASA increase the role of private contractors in the push to permanently settle the moon and eventually explore Mars. But it appears that neither the Administration nor anyone else has yet considered the true free-market solution for America's moribund space program: complete privatization. There is a contradiction at the heart of the space program: space exploration, as the grandest of man's technological advancements, requires the kind of bold innovation possible only to minds left free to pursue the best of their thinking and judgment. Yet, by placing the space program under governmental funding, we necessarily place it at the mercy of governmental whim. The results are written all over the past twenty years of NASA's history: the space program is a political animal, marked by shifting, inconsistent, and ill-defined goals.

### Privatization will kick-start the space program

DINERMAN ‘9 (Taylor, well-known and respected space writer regarding military and civilian space activities May 11, “NASA Approves Partial Privatization of the Space Program”, http://www.foxnews.com/story/0,2933,519609,00.html, MinR)

NASA's critics have long asked: Why does the space agency need to design and build its own rockets and spacecraft? When the Justice Department or the Centers for Disease Control want to send employees somewhere, they don't specify the aircraft types, let alone design the airframes, engines and avionics. They just buy plane tickets. Even the military finds it cheaper to use civilian aircraft for certain missions. So why should space transportation be any different? NASA's beginning to agree. For the first time, after nearly a half century of building its own rockets and orbiters, it has approved the outsourcing of some of the equipment that enables its manned space missions to private contractors. Last week, acting NASA Administrator Chris Scolese told a congressional subcommittee that the agency plans to give $150 million in stimulus-package money to private companies that design, build and service their own rockets and crew capsules — spacecraft that could put astronauts in orbit while NASA finishes building the space shuttle's replacements. On Thursday, the White House ordered a top-to-bottom review of the entire manned space program, one that will be led by former Lockheed Martin CEO Norman Augustine, long considered a friend of private space ventures. Both developments show that the once-reluctant space agency and the Obama administration are ready to support commercial human spaceflight. It's a dramatic change, one that could reduce America's dependency on Russia for the next half-decade after the space shuttle program ends, and one that could **kick-start a space program that some see as having stalled for 40 years**.

## Privatization Solves- Innovation/Tech

### Privatization forces innovation- Government stiffles

Garmong 2004 (Robert, Ph.D. in philosophy, was a writer for the Ayn Rand Institute from 2003 to 2004. The Institute promotes the philosophy of Ayn Rand, author of [Atlas Shrugged](http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B) and [The Fountainhead](http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B). “Privatize Space Exploration: The Free-Market Solution For America's Space Program,” June 27th Capitalism Magazine http://www.capitalismmagazine.com/science/space/3763-privatize-space-exploration-the-free-market-solution-for-america-039-s-space-program.html)

Indeed, the space shuttle program was supposed to be phased out years ago, but the search for its replacement has been halted, largely because space contractors enjoy collecting on the overpriced shuttle without the expense and bother of researching cheaper alternatives. A private industry could have fired them--but not so in a government project, with home-district congressmen to lobby on their behalf. There is reason to believe that the political nature of the space program may have even been directly responsible for the Columbia disaster. Fox News reported that NASA chose to stick with non-Freon-based foam insulation on the booster rockets, despite evidence that this type of foam causes up to eleven times as much damage to thermal tiles as the older, Freon-based foam. Although NASA was exempted from the restrictions on Freon use, which environmentalists believe causes ozone depletion, and despite the fact that the amount of Freon released by NASA's rockets would have been trivial, the space agency elected to stick with the politically correct foam. It is impossible to integrate the contradictory. To whatever extent an engineer is forced to base his decisions, not on the realities of science but on the arbitrary, unpredictable, and often impossible demands of a politicized system, he is stymied. Yet this politicizing is an unavoidable consequence of governmental control over scientific research and development.

### Private sector is crucial for tech breakthroughs

Bormanis 2010 – holds a B.S. in Physics and an M.A. in Science, Technology and Public Policy, earned under a NASA Space Grant Fellowship at George Washington University (Andre, “Critical partnerships for the future of human space exploration”, http://www.thespacereview.com/article/1667/1)

If NASA is still building Ares 1 and Orion when the federal government begins to make the draconian cuts necessary to move toward a balanced budget, we will be stuck in LEO for a very long time. Shifting more of the cost to the private sector and international partners will help alleviate the burden on the US taxpayer. Enhancing the role of robotics will lower the cost of human missions beyond LEO even more by deferring the expense of human Mars landing and return vehicles until after Ph.D. missions have yielded their maximum scientific returns. By taking a more incremental, step-by-step approach, as opposed to the largely inflexible Apollo-style architecture represented by Constellation, unforeseen technological breakthroughs can more easily be integrated into future systems. Human exploration of the solar system won’t begin in earnest until a radical reduction in the cost of getting humans and payloads into LEO is achieved. Such a breakthrough may not come for decades, if ever, or it could happen sooner than we dare believe. In the meantime, we can continue to test the waters of the great ocean of space with whatever resources and ingenuity we can muster, confident that someday we’ll be making waves.

### Privatization solves innovation and decreases costs- empirics

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

If at that time NASA had begun to turn over space activities to the private sector, space stations and Moon bases might be a reality today. Market competition usually brings down the real price of goods and services. For example, since 1978 the price of airline travel in constant dollars has been cut by at least 30 percent. Shipping costs for oil have dropped by 75 percent. And in the communications satellite industry, the one space activity principally in private hands, costs have dropped dramatically in real terms. By contrast, as nearly as can be determined from impenetrable NASA accounting, the cost of putting payloads into orbit has skyrocketed. David Gump in *Space Enterprise* estimated that the cost, in constant dollars, went from $3,800 per pound with *Apollo* to $6,000 with the shuttle. Alex Roland of Duke University estimated that the cost of a shuttle flight, including development and capital costs, is not the $350 million claimed byNASA but as much as $2 billion, or some $35,000 per pound of payload.

## Privatization Solves- Constellation

### Privatization solves Constellation more efficiently

David 10 (N, david is a freelance writer for helium, “The NASA 2011 Budget and the Future of America’s Program”, http://www.helium.com/items/1734055-nasa-2011-budget, 2/7)

One encouraging sign is that the commercialization of low Earth orbit is part of the plan. The Space Shuttle fleet will be retired at the end of 2010. Rather than use NASA resources to develop a replacement for the Shuttle, the goal is to have the commercial sector develop the means to reach low Earth orbit.  The commercialization of space is long overdue. Private enterprise will do it more efficiently and cost-effectively, and leaving low Earth orbit to the private sector frees up NASA resources to explore deep space. Billions of dollars are allocated to NASA in the 2011 budget and beyond for research and development of new technologies and approaches to space flight. Hopefully, breakthrough technologies will make space flight easier, faster, and more affordable.

## Privatization Solves- Launch Vehicles

### NASA Fails at Launch vehicles- hinders innovation and drives up cost

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

NASA, unfortunately, is still involved in developing new vehicles, despite private-sector efforts and a growing sentiment that NASA should restrict itself to purchasing data and services, not hardware. For example, NASA has joint ventures with Lockheed-Martin, Orbital Sciences, and Boeing to produce new launch vehicles: the X-33, the X-34, and the X-37 VentureStars, respectively. NASA was supposed to pay only for development of technology, with those companies deciding whether to build and operate the crafts. But those vehicles have experienced serious problems and delays. NASA requested an extra $4 billion for those projects in 2001. Congress rejected the request. Such subsidies continue to take a toll. Beal Aerospace recently dropped plans for a geostationary satellite launcher because of NASA-financed rockets.

### Private Sector key to innovation in launch vehicles

NSS, 10(April 15, 2010, Nation Space Society, “Obama’s speech on Space Exploration in the 21st Century,” <http://blog.nss.org/?p=1783>)

And we will extend the life of the International Space Station likely by more than five years, while actually using it for its intended purpose: conducting advanced research that can help improve daily life on Earth, as well as testing and improving upon our capabilities in space. This includes technologies like more efficient life support systems that will help reduce the cost of future missions. And in order to reach the Space Station, we will work with a growing array of private companies competing to make getting to space easier and more affordable. I recognize that some have said it is unfeasible or unwise to work with the private sector in this way. But the truth is, NASA has always relied on private industry to help design and build the vehicles that carry astronauts to space, from the Mercury capsule that carried John Glenn into orbit nearly fifty years ago, to the Space Shuttle Discovery currently orbiting overhead. By buying the service of space transportation – rather than the vehicles themselves – we can continue to ensure rigorous safety standards are met. But we will also accelerate the pace of innovation as companies – from young start-ups to established leaders – compete to design, build, and launch new means of carrying people and materials out of our atmosphere

### NASA should turn over launch vehicle creation and management to the private sector- solves best

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

Such a reform could be a boon to the private launch companies. Those companies could have an incentive to build additional launch capacity to clear up launch backlogs; that would more than offset their costs. They then would have an incentive to cut launch costs to ensure continuing use of capacity, which in turn could allow entrepreneurs who were previously unable to meet high launch costs to take advantage of cheap access to space. In addition, as much of the shuttle operations as possible should be turned over to the private sector. Perhaps NASA could allow the private operator of the shuttle to sell launch services to customers. United Space Alliance could seek paying customers and could ‘‘ rent’’ the shuttle from NASA for such profit-making ventures. Since United Space Alliance would have to put some of its own money at risk, it would have an incentive to reduce the real costs of a shuttle flight. That approach or some variation of it could help to ensure that the life spans of the shuttles were determined more by economic than by political considerations.

### Privatizaiton solves Launch Costs

Collins, 1993 (Patrick, Hosei University, Tokyo, "Towards Commercial Space Travel", Journal of Space Technology and Science Vol.9 No.1, pp 8-12.., Fall, http://www.spacefuture.com/archive/towards commercial space travel.shtml)

Government organisations' objectives and modes of operation are necessarily different from those of private comanies. It might be said that whereas companies are entrepreneurial, government organisations are "procedural", since they must be able to show to the public that their actions are in accordance with established rules. For this reason there are certain things that governments cannot do effectively. Commercial innovation is one of these, and this is required in full measure in order to develop popular space travel. This difference can perhaps be further illustrated by considering what might be the result if the head of a national air force were asked what it would cost to provide tourist flights to a certain destination. Because they operate a variety of different aircraft it might be thought that an air force could do this. But the way in which an air force operates is completely different from that of a commercial air travel company, and so their estimates would have almost no relation to the actual costs of a commercial company. Although commercial space travel is not an appropriate activity for government organisations, helping the private sector in various ways to develop the capabilities necessary to create a new and profitable industry is one of the traditional roles of government in every advanced country. In particular, governments in many countries played a major role over several decades in the development of aviation into a commercial industry, and they continue to do so, both directly and indirectly. Consequently, determining the correct roles for government and private organisations in the development of this field will be very important to its success (2), and may be of considerable economic significance if the commercial space travel industry grows as has been suggested (3). 1992, International Space Year, was the 35th year of the space industry (measured from the first satellite launch in 1957), which is half the traditional western life-span of "three score years and ten". Thus 1993, the start of the "second half", is perhaps an appropriate date for starting a new approach to space development. 3 Perestroika in the space industry With the end of the cold war forcing the restructuring of the aerospace industry it might be said that we are seeing the beginning of "perestroika in the space industry". Over the decades of the cold war the aerospace industry has developed astonishing technological capabilities. It would be of potentially enormous economic benefit if this could be channelled into commercially valuable activities, rather than allowed to go to waste. One sign of "perestroika" in the space industry is the recently announced joint venture by Lockheed and Krunichev to market the low-cost Proton launch vehicle. Although western governments are trying to protect the markets for their higher-cost launch vehicles, this development should put pressure on western makers of high-cost expendable rockets to consider developing low-cost reusable vehicles. Another sign that the space industry is at last beginning to live up to aviation's example was the 1990 flight of Tokyo Broadcasting Service (TBS) journalist, Akiyaka Toyohiro, to the orbiting space station, MIR. This achieved a significant place in the history of humans' expansion into space. As well as being the first Japanese, and the first journalist to visit space, Akiyama-san's flight was the first commercial space flight by someone outside the space industry. His flight was also strikingly similar to the many pioneering flights in the early days of aviation sponsored by newspaper companies, primarily for the purposes of publicity. As an example, the Mainichi Shimbun company (which today is the parent company of TBS) and the Asahi Shimbun company competed continuously through the 1920s and 30s, sponsoring international competitions, such as for the first flight across the Pacific ocean, and long distance flights. For example the 1937 flight of the "Kamikaze-go" from Tokyo to London was sponsored by the Asahi Shimbun company, while in 1939 the "Nippon-go" made an eastward flight around the world, visiting 30 countries, sponsored by the Mainichi Shimbun. These and similar flights, such as Lindbergh's transatlantic flight, that led to the "Lindbergh boom" in US domestic aviation, played a major role in popularizing passenger flight, by demonstrating that aviation technology was mature enough to provide safe passenger operations. The second such commercial space flight project, the flight of the British Helen Sharman to MIR in 1991, was similar in principle to Akiyama-san's flight, except that it was commercially unsuccessful, leading to a substantial loss on the part of the sponsors. But this is also part of business; investments can lead to losses as well as to profits. After the recent "bubble economy" many companies in Japan are facing unprecedented losses caused by misdirected investment. A small fraction of these losses would be sufficient to pay for the development of a space tourism business. As and when reusable commercial passenger-carrying launch vehicles are developed, they will surely receive a high level of publicity. For this reason they will be very good vehicles for commercial publicity, and it seems probable that there will be many sponsored space flights emulating the early days of commercial flight. Such a pattern of development in the space industry could well have similar benefits for the industry's commercialisation. 4 Commercialisation However, the development of reusable launch vehicles, which is needed both to reduce launch costs and to increase their reliability to the level of aircraft, faces a problem of commercial justification. The present day launch market is very small; a few tens of satellites per year. Consequently a single reusable launch vehicle that could fly even once per week, would be able to launch all of these (although due to political interference in the market, this would be unlikely). Unfortunately there is no good prospect that the demand for satellites will grow very much as the price of launch falls. Indeed, such markets as telecommunications and broadcasting seem likely to shrink under competition from more cost-effective terrestrial systems such as optical fiber cables and cellular telephone networks. Consequently in order to be able to recover the development costs of reusable launch vehicles, the space industry needs a new, much larger market, that would require tens of launches per day. If commercial space travel could become popular enough to reach a scale of the order of one million passengers per year, it could pay for the development of low cost launch vehicles. Table 1 illustrates the powerful effect of accessing such a large market; the development of such a vehicle might be amortized commercially. To reach this market is the key challenge for the space industry today. If it can reduce costs sufficiently, the industry can grow very large, with such important projects as satellite power stations ( SPS) providing environmentally clean electric power on a global scale. This will be the real "space age". On the demand side, we know from modern popular culture that space travel is a popular idea in many countries (4). For example, in recent years some of the most popular video series and films such as Space Battleship Yamato, Star Wars, Mobile Suit Gundam and Star Trek are based in space. Consequently, if space travel was available at the same cost as air travel, it would certainly become a very large market - many tens of millions of customers per year (which is still only a few percent of air travel). However, we also know that flight to orbit will be more expensive than air travel, because the fuel needed to accelerate a person to Mach 25 is approximately that required to transport them around the world. Thus space travel will be a relatively expensive service, and if it is to become widely popular, it will probably be as a "once in a lifetime" experience for many customers, a unique modern equivalent of a "journey to Mecca" in an earlier age. Although one million passengers per year would be very large for the space industry, it is quite small by comparison with modern aviation. However, in order to reach this scale, the cost must be low - less than 2,000,000 Yen per person or 20,000 Yen / kg, about 1% of the cost of launch using present-day expendable rockets. 5 Cost reduction In order to reduce costs to the required extent, we must start to get experience of reusable commercial launch vehicle operations as soon as possible. The only such project currently under way is the McDonnell Douglas DC-X / DC-Y / Delta Clipper project, though a vehicle more like the Pacific American Phoenix would seem more appropriate for passenger travel (5). It is not uncommon for members of companies building expendable rockets to state that VTOVL SSTO rockets are impossible, but their feasibility has been demonstrated incontrovertibly by Hudson (5)(Appendix). The only interesting question is how much it would cost, and how much mass is required, to make an SSTO vehicle fully reusable. In this context it is interesting that, despite government funding of some hundreds of $ billions to date, the space industry has not yet tried to do this in any country. Cost reduction is one of the continual driving forces in commercial industry, since every reduction in cost is a direct addition to profit, and reducing prices below those of competitors is one of the major forms of commercial competition. However, the possible cost of passenger space travel is controversial, with published estimates ranging from $400,000 in 2012 (6); $60,000 in the year 2050 (7); to $10,000 in the 2000s (8). An experienced figure such as Ruppe doubts whether low-cost launch is possible. However, if the space industry does not succeed in reducing launch costs low enough, then space travel will not become a significant business, and the space industry will probably continue as a small-scale, high-cost activity of government researchers.In that case, space will not be a "new frontier" for humans. The DC-X project budget is some $60 million, or less than 0.05% of NASA's annual budget. This shows a lack of interest by US politicians, but it is also perhaps a sign that much can be achieved at relatively low cost. Once reusable launch vehicles are in commercial operation, operating companies will learn continually about improving their operation and reducing costs. When the space industry reaches this stage, the early history of aviation will have many interesting lessons for its further commercial development. 6 Space hotels An interesting aspect of the future development of commercial travel to low Earth orbit is the relation between the cost of flights to and from orbit, and the cost of staying at an orbiting "hotel". At a target price of some 20,000 Yen per kilogram to low Earth orbit, a passenger flight would cost some 2,000,000 Yen. At this price the launch of an orbital hotel weighing some hundreds of tons would cost some tens of billions of Yen. If the demand for trips to orbit was of the order of 1 million passengers per year, and if passengers were to stay in orbit for 2 or 3 days, there would be a demand for accommodation for between 5,000 and 10,000 people in orbit. This scale would certainly provide manufacturers the opportunity to obtain significant scale economies through mass production of accommodation units. It is worth noting that a "space hotel" would be much easier to design and build than the US/international space station. As an illustration of this, accommodation made from several units of the Skylab space station from the early 1970s, excluding the scientific equipment but including more windows and comfortable fittings, would be satisfactory for an initial hotel. It is difficult to believe that each unit would cost more than a few billion Yen, about the price of a business jet, which is a much more complex vehicle. The total cost of such a hotel, including launch, should therefore be a few tens of billions of Yen, which is comparable to that of a modern office building. If we assume that such a hotel should earn annual revenues of 10% of its cost, or some billions of Yen per year, then if it accommodated some thousands of passengers in a year, the cost of a few days' stay would be of the order of 1,000,000 Yen, or some 50% of the cost of a passenger flight to orbit. It will be interesting to see whether more detailed future cost estimates support this approximation. If so, then it seems likely that space hotels will be built even in the early stages of space tourism. 7 Conclusion Provision of low-cost passenger flights to orbit seems to have the potential to become a key opportunity for the space industry to tap a huge new commercial market. It is therefore highly desirable to devote resources to discovering whether it is possible to develop this business in the near future.

### Free Market solves for vehicle launches

Space Access Society 2006 [Space Access Society, “SAS’s View of Things, As Of 2/15/06,” http://www.spaceaccess. org/updates/saspolcy.html]

Why Do We Believe This Is Possible? Current US launch costs are dominated by large fixed development, personnel, and facilities overheads amortized over a very small number of launches, plus the direct and indirect costs of throwing away or completely rebuilding the vehicle every flight. These are all legacies of the way we originally got into space, hiring small armies to inspect-in adequate quality to hastily-converted ballistic missiles. Fifty years later, we've institutionalized these methods into massive selfperpetuating bureaucracies rather than abandoning them as obsolete. Somewhat counterintuitively, fuel costs are not a major obstacle to radically cheaper space launch. Current US launch costs are on the order of ten thousand dollars per pound delivered to low orbit. The total propellant cost for a generic liquid-oxygen/kerosene launcher is on the rough order of ten dollars per pound delivered to low orbit. Airlines, flying reusable vehicles at high flight rates, typically operate at overall costs of two to three times their fuel costs. There is no law of physics that prevents reusable rockets from approaching similar cost ratios. We pay the crippling current cost of US launch largely because of fifty years of entrenched bureaucratic bad habits. OK, How Do We Go About Fixing This? We believe that radically cheaper access is possible in the near term with current technology, by operating reusable rockets with sufficiently lean organizations at sufficiently high flight rates. Rocketry has become more medium-tech than high, as witness (among other things) growing third-world missile proliferation. At the same time, modern lightweight materials and electronics greatly ease combining the necessary high performance, ability to abort intact in case of problems, and fast-turnaround small-groundcrew reusability. This lets us break away from the traditional expendable-missile "ammunition" design and "standing army" operations mindsets, with potential huge benefits to cost and reliability. What's been lacking to date has been the proper combination of reasonable goals (it's DC-3 time, not 747), sensible focussed management, inspired engineering (KISS!), and funding. Much depends on a leap of faith - faith in the studies that show large new markets emerging at lower launch costs to support the necessary higher flight rates - "if you build it, they will come". Market studies do strongly indicate that somewhere around one-tenth of current US launch costs, the market for space launch will reach a tipping point where demand for launches starts expanding fast enough to more than make up for reduced per-launch revenue. The overall launch market will start growing rapidly at that point, as investment in further launch cost reductions changes from a leap of faith to a sure thing. Further cost reductions will drive further market expansion, to the point where the space transport market will rapidly begin to approach the air transport market in economic importance. (At least two such new markets, tourism and post revolution-in-military-affairs defense, are already growing steadily less speculative. The chief thing we can predict about the other new markets that will appear as costs drop is that they'll surprise us. Who would have predicted in 1952 that, say, fresh flowers would be profitably airfreighted across oceans?) Our Major Goal Our major goal at Space Access Society is to help bootstrap space transportation costs downward to the point where this virtuous circle gets underway. We see this as the approach to humanity permanently expanding off this planet with by far the best chance of success. Government programs come and go, but if there's profit in a thing it's here to stay.

## Privatization Solves- Mission to Mars

### Privatization key to a cheap and efficient mission to Mars

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

Some NASA defenders argue that only governments can sponsor scientific space ventures that promise no profit for decades, if ever. But indicative of NASA’s inability to prioritize its activities or hold down costs has been the planning of a manned mission to Mars. In 1991 President Bush announced the goal of placing humans on the Red Planet by 2019. Such a mission would bring unparalleled scientific returns. But NASA’s ‘‘ 90 DayReport’’ put the mission’s price at a staggering $450 billion, effectively killing the idea. Sensing that a less costly mission was possible, then– Martin Marietta engineer Robert Zubrin and other scientists devised what they called a Mars Direct approach that would use existing technology and dispense with the space stations, Moon bases, and NASA’s other expensive infrastructure. Zubrin saw that, instead of carrying return fuel to Mars, an unmanned ship could land first with a simple chemical laboratory to manufacture methane and oxygen (i.e., rocket fuel) from Mars’s carbon dioxide atmosphere. NASA put the cost of Zubrin’s approach at between $20 billion and $30 billion, some 95 percent less than the government approach. Yet NASA continues to squander its $13.5 billion annual budget on a space shuttle and a station that contribute little new, useful knowledge. That agency could mount two or three manned Mars missions for the cost of the space station.

### Commercial efforts solve Mars exploration.

Worden, 2004 [Simon, Brigadier General (USAF, Retired), a Fellow in the office of Senator Sam Brownback on detail from the University of Arizona where he is a Research Professor of Astronomy, was Director of Transformation at the Space and Missiles Systems Center, Los Angeles Air Force Base. As the staff officer for initiatives in the first Bush administration's National Space Council, he spearheaded efforts to revitalize our civil space exploration and earth monitoring programs, has written or co-authored more than 150 technical papers in astrophysics, space science and strategic studies, was scientific co-investigator for two NASA space lab missions, Marshall Institute, “Private Sector Opportunities and the President’s Space Exploration Vision” 4-7, http://www.marshall.org/pdf/materials/230.pdf]

Let me suggest a radical concept just as food for thought. Right now we don’t know how to get to Mars in any affordable manner. The discussions about exploring Mars with people is where these ridiculously large numbers of $1 trillion or more come from. However, we could probably send people one way affordably to Mars. I don’t mean on suicide missions, I mean to live there. The government is not ever going to do that. I can’t imagine a debate in Congress about the Government sending people one way to Mars without bringing them back even occurring, let alone succeeding. However, the U.S. government could find suitable locations for bases and put in place communications and navigation infrastructure. We’re already starting with this. The international satellites that are now orbiting Mars are linked by common communications protocols. More could easily be done in this communications infrastructure area. A 100-ton payload private launch vehicle may cost $200 million. There is a pretty good chance there are caves on Mars, as we know there was running water at some point. If the U.S. government had already found ideal locations and if the life-supporting infrastructure were already sent and were operating to produce oxygen, water and so forth, there would be a reasonable possibility for people to live there on Mars indefinitely. I suspect that there would not be a dearth of volunteers to go on a private expedition and I suspect also that some people would be willing to finance that. The thrill of being the first settler on Mars is pretty high. I would go and some of the time, my wife would probably send me. She would say, “Write if you find work.” These are the kind of missions for which private sector investment would be more in line with the traditional American views of how to do things. Funding space exploration and colonization with private investment is probably a lot more affordable for taxpayers, although this type of exploration is much different than what people thought about a decade or so ago.

## Privatization solves – Moon Exploration

### Private sector solves mission to the moon

David 5 (Leonard, Senior Space Writer National Space Society, “ Private Sector, Low-Cost Lunar Plan Unveiled” Nov 21 <http://www.space.com/1793-private-sector-cost-lunar-plan-unveiled.html>)

NASA has tallied its future lunar mission costs, projecting a figure of $104 billion over 13 years. According to SpaceDev's chief, Jim Benson, the private group has found that a more comprehensive series of missions could be completed in a fraction of the time and for one-tenth of the cost of the NASA estimate. Each mission, as envisioned by SpaceDev, would position a habitat module in lunar orbit or on the moon's surface. The habitat modules would remain in place after each mission and could be re-provisioned and re-used, thus building a complex of habitats at one or more lunar locations over time, according to a press statement on the study findings. Benson also noted: "We are not surprised by the significant cost savings that our study concludes can be achieved without sacrificing safety and mission support." In outlining their study findings, SpaceDev has blueprinted a conceptual mission architecture and design for a human servicing mission to the lunar south pole - targeted for the period between 2010 and 2015. The length of stay on the Moon would be seven or more days - depending on cost, practicality and other issues. The SpaceDev study explored a range of technologies that would be needed: hardware that exists now, is currently under development, and proposed technology that NASA or other nations could spearhead, or might be developed by the private sector in time to be incorporated into lunar operations. The SpaceDev study underscores a key finding: A combination of technology already under development by companies could be combined to create a growing and lasting presence at the Moon at costs significantly lower than those proposed by other organizations.

### Private sector can solve lunar missions -- NASA not key.

David 5 (Leonard, Senior Space Writer, “ Private Sector, Low-Cost Lunar Plan Unveiled” Nov 21 <http://www.space.com/1793-private-sector-cost-lunar-plan-unveiled.html>)

A newly released study has focused on how best to return people to the Moon, reporting that future lunar missions can be done for under $10 billion - far less than a NASA price tag. The multi-phased three-year study was done by a private space firm, SpaceDev of Poway, California, and concluded that safe, lower cost missions can be completed by the private sector using existing technology or innovative new technology expected to be available in time to support human exploration of the Moon in the near-future. SpaceDev announced the results of its International Lunar Observatories Human Servicing Mission study last week at a meeting conducted by Lunar Enterprise Corporation (LEC), a wholly owned subsidiary of Space Age Publishing Company of Hawaii's Island, Hawaii, and Palo Alto, California. The study was funded by LEC.

## Privatization Solves- Moon Mining

### Private corporations solve mission to the moon and mining its resources.

Schmitt 2003 (Hon. Harrison H doctorate in Geology from Harvard, was accepted into NASA’s Scientist-Astronaut program in 1965. In 1972, he served on the three-man crew of Apollo 17, the last U.S. mission to the moonSenate Committee of Commerce INTERLUNE-INTERMARS INITIATIVE, INC. Testimony of Hon. Harrison H. Schmitt: Senate Hearing on "Lunar Exploration" November 6, http://www.spaceref.com/news/viewsr.html?pid=10924)

A return to the Moon to stay would be at least comparable to the first permanent settlement of America if not to the movement of our species out of Africa. I am skeptical that the U.S. Government can be counted on to make such a "sustained commitment" absent unanticipated circumstances comparable to those of the late 1950s and early 1960s. Therefore, I have spent much of the last decade exploring what it would take for private investors to make such a commitment. At least it is clear that investors will stick with a project if presented to them with a credible business plan and a rate of return commensurate with the risk to invested capital. My colleagues at the Fusion Technology Institute of the University of Wisconsin-Madison and the Interlune-Intermars Initiative, Inc. believe that such a commercially viable project exists in lunar helium-3 used as a fuel for fusion electric power plants on Earth. Lunar helium-3, arriving at the Moon as part of the solar wind, is imbedded as a trace, non-radioactive isotope in the lunar soils. There is a resource base of helium-3 about of 10,000 metric tonnes just in upper three meters of the titanium-rich soils of Mare Tranquillitatis. The energy equivalent value of Helium-3 delivered to operating fusion power plants on Earth would be about $4 billion per tonne relative to today's coal. Coal, of course, supplies about half of the approximately $40 billion domestic electrical power market. A business and investor based approach to a return to the Moon to stay represents a clear alternative to initiatives by the U.S. Government or by a coalition of other countries. A business-investor approach, supported by the potential of lunar Helium-3 fusion power, and derivative technologies and resources, offers the greatest likelihood of a predictable and sustained commitment to a return to deep space.

## Privatization Solves- NEO Deflection/Detection

### Private sector solves logistical capabilities which make NEO projects cheaper/more efficient

Schmitt 2003 (Hon. Harrison H doctorate in Geology from Harvard, was accepted into NASA’s Scientist-Astronaut program in 1965. In 1972, he served on the three-man crew of Apollo 17, the last U.S. mission to the moonSenate Committee of Commerce INTERLUNE-INTERMARS INITIATIVE, INC. Testimony of Hon. Harrison H. Schmitt: Senate Hearing on "Lunar Exploration" November 6, http://www.spaceref.com/news/viewsr.html?pid=10924)

The creation of capabilities to support helium-3 mining operations also will provide the opportunity to support NASA's human lunar and planetary research at much reduced cost, as the cost of capital for launch and basic operations will be carried by the business enterprise. Technology and facilities required for success of a lunar commercial enterprise, particularly heavy lift launch and fusion technologies, also will enable the conduct, and reduce the cost of many space activities in addition to science. These include exploration and settlement of Mars, asteroid interception and diversion, and various national security initiatives. It is doubtful that the United States or any government will initiate or sustain a return of humans to the Moon absent a comparable set of circumstances as those facing the Congress and Presidents Eisenhower, Kennedy, and Johnson in the late 1950s and throughout 1960s. Huge unfunded "entitlement" liabilities and a lack of sustained media and therefore public interest will prevent the long-term commitment of resources and attention that such an effort requires.

## Privatization Solves- Telecommunication/Remote Sensing Satellites

### Private Companies are replacing government action with telecommunication and Remote Sensing Satellites

Salin 2001 (Patrick A, Professor at the Institute of Air and Space Law McGill University, Montreal, Canada, “Privatization and militarization in the space business environment,” Space Policy 17 (2001) 19}26 Online)

The low Earth orbits (LEOs) may easily host close to 1000 civilian satellites within the next decade [5,6].5 They will be dedicated to the following main activities: Broadband satellite communications. Initially, these were expected to be used for massive data transfer purposes; but, by and large, they are now going to be used in connection with the Internet Protocol. Mobile satellite communications. In spite of the doomed Iridium experience [7,8],6 it is hoped that Globalstar, ICO Global and their followers will succeed in implementing a successful mix of pure LEO mobile telephony with terrestrial connections, via GSM roaming agreements. Satellite navigation systems. Initially elaborated for defense purposes, these are now becoming an inevitable instrument for a myriad of terrestrial applications. One wonders how it was possible to live before GPS was invented! Earth remote sensing for pacific purpose*s*. In a similar fashion, remote sensing is being used for innumerable applications. Perceived as being a luxury gadget at first, it agricultural monitoring, weather watch, ice-cap measuring and ocean observation, etc.

## Privatization Solves- Military Satellites

### Private sector can effectively produce satellites

Clark 11 (Stephen, staff writer- Spaceflight Now, “U.S Military Turns To Private Sector For SATCOM Capacity, "http://spaceflightnow.com/news/n1102/17milsatcom/, 2-17)

"The commercial marketplace for procuring commercial satellite technologies is maturing very rapidly, and in some cases may be eclipsing what the military can do," Pino said at a commercial space conference in Washington last week. Pino said government-owned satellites should focus on nuclear-hardened communications, contested environments and anti-jamming capabilities. Commercial satellites can provide the bulk of everyday communications for the military. Military satellite communications, or MILSATCOM, was ahead of commercial technology 15 years ago, but Pino said he believes industry can provide better benign communications than the government can today. "I used to always think the role of commercial was to augment MILSATCOM," Pino said. "I'm unlearning what I used to think I knew. Commercial is here to stay."

## Privatization Solves- Solar Sails

### Private companies are already working on solar sails -- CP solves the case.

David 2006 (Leonard, Senior Space Writer National Space Society, “Private Space Companies Forge Ahead Despite Failures” <http://www.space.com/2374-private-space-companies-forge-failures.html>)

Louis Friedman, Executive Director of The Planetary Society based in Pasadena, California, said that they are proceeding with a privately-backed Cosmos 2 solar sail effort. The earlier Cosmos 1 sail was launched skyward on June 21 of last year atop a Russian sub-launched Volna rocket. But the submarine-launched booster's first stage shut off, with the mission failing some 83 seconds into flight, Friedman told attendees of the International Space Development Conference (ISDC) that began today. "It never made it to orbit," Friedman explained, noting that the Volna rocket suffered a first stage turbopump failure. "We'll try it again," he said. Friedman said that some money has been raised for the Cosmos 2 sail project, but they are looking for a new sponsor for the mission. While calling use of the Volna rocket "a worthy attempt," Friedman said the next solar sail would ride upon a Soyuz-Fregat or Cosmos 3M launcher as a piggyback payload.

## Privatization Solves- Space Tourism

### Free market solves space tourism best.

National Space Society, 2009 (May 26, 2009, National Space Society, “National Space Society Applauds Nomination of Charles Bolden and Lori Garver to lead NASA,” <http://blog.nss.org/?p=905>)

Space tourism is a catalyst that has sparked a whole new industry of passenger-carrying spacecraft. New private firms that did not exist when this conference was first held 13 years ago now promise to revolutionize the space transportation industry. Thanks to President Obama, (and many of you), the United States and NASA are poised to take full advantage of this historic shift. The President’s budget commits substantial funding for NASA to increase the number and scope of its commercial partnerships. We plan to make use of commercial space providers to transport astronauts to the space station and other low-Earth orbit destinations. This new direction may have been suggested as the preferred option by the Augustine Commission, but the decision was made by the President, with the full support of NASA’s leadership. This change in national direction has been coming, with bipartisan momentum, for over two decades. It started in the Reagan Administration, when a Democratic Congress passed a law creating the FAA Office of Commercial Space Transportation, and President Reagan removed commercial satellites from the Space Shuttle by Executive Order. It continued in 1990, when a Democratic Congress passed the Launch Service Purchase Act of 1990, which was signed into law by the first President Bush. Then, in 1998, a Republican Congress passed the Commercial Space Act of 1998, which was signed by President Clinton. Most recently, in 2004, under the second President Bush, the Aldridge Commission concluded that “NASA’s relationship to the private sector, its organizational structure, business culture, and management processes … must be decisively transformed”. This recommendation by the Bush Administration’s Aldridge Commission is especially pertinent now. “This is an exciting time for NASA and the space industry as a whole,” said Mark Hopkins, Senior Vice President of NSS. “NASA is rebuilding its human exploration capabilities and the private sector is making real progress toward commercial access to space. Garver understands the importance of both. Bolden has the hands-on experience necessary to guide NASA into the next phase of its mission. We look forward to interacting with Garver and Bolden as they make decisions about the next steps toward a spacefaring future.”

## Privatization Solves- SPS

### Private sector and incentives solve SPS

Rouge, 2007– Acting Director, National Security Space Office (Joseph D., October 9, 2007, “Space‐Based Solar Power As an Opportunity for Strategic Security,” <http://www.google.com/url?sa=t&source=web&cd=100&ved=0CE8QFjAJOFo&url=http%3A%2F%2Fwww.nss.org%2Fsettlement%2Fssp%2Flibrary%2Ffinal-sbsp-interim-assessment-release-01.pdf&ei=9fIATrqrI83IswbOsOCyDQ&usg=AFQjCNHZbOQGqRh8gMo6OtfDmotWq-XN-w&sig2=MHRakSQig4ZDGoYO00OxRg>)

All previous work on Space‐Based Solar Power, Solar Power Satellites and/or Space Solar Power should be reviewed. Much of that has already been done for this SBSP Architecture Study and C - 5 many of the writers of these reports have contributed valuable feedback, thoughts and advice to this process. An inventory should be created of who (individuals, corporations and organizations) has the expertise related to the various areas discussed in the studies and who is actively working on the research and development needed to make SBSP a reality. Areas where research is needed must be identified and funded. Debates have arisen amongst the contributors as to the value of various competing technologies. More details on the technological criteria need to be explored and tested. These must be compared and the most practical and viable, focused upon. The private sector should be engaged. The new space companies working on reusable launch, space stations and other technologies should be consulted and encouraged as well as the traditional large aerospace companies. Both may have the vision, creativity and drive necessary to help make SBSP happen. Prizes for solutions to specific issues have been shown to be valuable. Appropriate prizes should be funded and publicized. A board of advisors should be created. It should consist of interested parties from a wide variety of industries who are committed to helping to make SBSP a reality.

## Privatization Solves – Weaponization (and Space Mil NB)

### Purchasing commercial assets solve international backlash

**PEÑA AND HUDGINS ‘2** (Charles, is senior defense policy analyst, AND\*\* Edward L. Hudgins is former director of regulatory studies at the Cato Institute, March 18, “Should the United States "Weaponize" Space? Military and Commercial Implications”, http://www.cato.org/pub\_display.php?pub\_id=1286, MinR)

Control of space is at the crux of the debate about the future of U.S. military space policy. **The question is not about militarizing space.** Clearly, we have been using and will continue to use space for military purposes. But, whereas we are currently using space assets to support terrestrial (ground, sea, and air) military operations, what Sen. Robert C. Smith (R-N.H.), the Space Commission (which was chaired by current Secretary of Defense Donald Rumsfeld), and others have proposed is that the United States move toward "weaponizing" space for space control. Advocates of a more aggressive U.S. military policy for space argue that the United States is more reliant on the use of space than is any other nation, that space systems are vulnerable to attack, and that U.S. space systems are thus an attractive candidate for a "space Pearl Harbor." But as important and potentially vulnerable as current U.S. space-based assets may be, deploying actual weapons (**whether defensive or offensive**) **will likely be perceived by the rest of the world as more threatening than the status quo.** Any move by the United States to introduce weapons into space will surely lead to the development and deployment of anti-satellite weapons by potentially hostile nations. As the dominant user of space for military and civilian functions, the United States **would have the most to lose from such an arms race**. Although there are legitimate (and unique) military requirements for space assets, virtually all are "dual use." Military requirements should not necessarily dictate those other uses. In fact, commercial efforts in space often lead those of the government and the Department of Defense and usually have lower costs, due to market influences and competition. National security must be one component of total U.S. space policy, but it must certainly not be the primary component. In the post-Cold War environment--with no immediate threat from a rival great power and none on the horizon--the United States must not establish over-stated and costly military requirements for space-based resources. **The military must make greater use of commercial space assets**. Also, the United States should strive to foster an environment that allows commercial space activity to grow and flourish rather than use it to create a new area for costly military competition.

# ==== ATs ====

## AT: Perm- Do Both

### Perm links to the netbenefit- it includes all the plan

### Cooperation fails- NASA will end contracts if they feel threatened

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

In addition, when companies offering private launch services do compete vigorously with NASA for customers or complain about NASA’s neglect of the restriction on carrying on the shuttle cargo that could be launched on private rockets, NASA lets the companies know that their efforts are not appreciated. Those companies must take that into account because NASA still contracts out some of its launches to those companies, and they do not want to lose those and future contracts.

### Permutation doesn’t solve – including government programs trades off with private investment – key to solve.

McCullagh 2007, (Declan chief political correspondent for CNET, 10/3/, “Do we need NASA?” CNET News, http://news.cnet.com/Do-we-need-NASA/2009-11397\_3-6211308.html)

The difference? Critics say it's the National Aeronautics and Space Administration. Aviation's youth and adolescence were marked by entrepreneurs and frenetic commercial activity: Lindbergh's trans-Atlantic prize money was put up by a New York hotel owner, and revenue from the airlines funded the development of the famous DC-3. The federal government aided aviation by paying private pilots to deliver air mail. Space, by contrast, until recently has remained the domain of NASA. Burt Rutan, the aerospace engineer famous for building a suborbital rocket plane that won the Ansari X Prize, believes NASA is crowding out private efforts. "Taxpayer-funded NASA should only fund research and not development," Rutan said during a recent panel discussion at the California Institute of Technology. "When you spend hundreds of billions of dollars to build a manned spacecraft, you're...dumbing down a generation of new, young engineers (by saying), 'No, you can't take new approaches, you have to use this old technology.'"

## AT: Perm do the CP

### CP is competitive

### Its means – having ownership of

Glossary of English Grammar Terms, 2005

(http://www.usingenglish.com/glossary/possessive-pronoun.html)

Mine, yours, his, hers, its, ours, theirs are the possessive pronouns used to substitute a noun and to show possession or ownership. EG. This is your disk and that's mine. (Mine substitutes the word disk and shows that it belongs to me.)

### NASA support of commercial space development is distinct from ‘its own’ space development programs

Berger, 11 - Houston Chronicle's space, weather and science reporter. (“NASA still being torn between commercial space and its own rockets,” Houston Chronicle Blog, 2/14, <http://blog.chron.com/sciguy/2011/02/nasa-still-being-torn-between-commercial-space-and-its-own-rockets/>

The president’s budget for NASA released today (see [fact sheet](http://www.whitehouse.gov/omb/factsheet_department_nasa/)) is similar to the [Senate compromise](http://www.aip.org/fyi/2010/082.html) last year, but contains some key differences. Notably the issues remain how much to spend on a heavy lift rocket and launch vehicle, and how much to invest in private-sector initiatives, such as [SpaceX](http://blogs.chron.com/sciguy/archives/2011/01/spacex_sends_a_message_to_budgetcutting_lawmakers_1.html), which two months ago became the first commercial entity to launch a spacecraft into orbit and subsequently recover it upon its return to Earth. As has been the case for some time, NASA is being asked to straddle a fence and support both commercial access to low-Earth orbit and build its own fleet of new space vehicles. In this budget environment, however, there’s just not enough money to do both. Under last year’s Senate compromise, for 2012, NASA would spend $400 million to foster private development of commercial crew services to orbit, and $4.05 billion on a launch rocket and crew vehicle. In the President’s proposed budget, NASA would spend $850 million on commercial crew services, but just $2.8 billion on a new NASA rocket and crew vehicle.

### Either a) the CP competes off its in the resolution or b) plan isn’t T- it’s a voter for fairness/education.

## AT: Fed Key- Military Tech

### US Military tech available in the private sector- Fed not key

Salin 2001 (Patrick A, Professor at the Institute of Air and Space Law McGill University, Montreal, Canada, “Privatization and militarization in the space business environment,” Space Policy 17 (2001) 19}26 Online)

We may consider that outer space should no longer be considered as a sanctuary safe from military operations as of 19 June 1999. On that day, a US Theater High- Altitude Area Defense (THAAD) rocket hit a target missile outside the Earth's atmosphere. Outer space is now undergoing a militarization process that is developing within a totally new framework, that of the privatization of space ventures and projects. The bipolar Cold War stage has been removed and gone is the threatening vision of nuclear warfare via all sorts of Earth-based and spaceborne weapons. Yet the big industrial concerns that manufactured the weapons of the Cold War have simply converted themselves and regrouped into mammoth civilian manufacturers, deploying constellations of civilian assets in outer space.2 Instead of procuring the much-criticized US Strategic Defense Initiative (SDI), they now produce dual-use goods that can be used in an undifferentiated manner for both civilian and military objectives [3,4]3. The borderlines between civilian and military high technology goods that prevailed only a few years ago have become meaningless and technical parameters that qualified equipment as being military, less than five years ago, are now useless, commercial entities being able to sell these, once forbidden tools, as plain commercial gadgets.4 The confusion between the US Department of Commerce and the US Department of State over determining what is (or should be) subject to authorization and what is not is illustrative of this situation. Yet, thanks to the loopholes and inconsistencies of the international treaties on outer space, we may soon end up with exactly the same result as during the Cold War \* Hollywood's Star Wars, live! We are slowly discovering that the militarization process of outer space seems to be a given, thanks to increasing competition within the space business environment. And, as privatization has accelerated during the last decade, we can clearly see an acceleration of the militarization process of outer space. This has become apparent through two main observations: (1) private space corporations are, more than ever, vanguards of national interests; and (2) commercial competition is another way for nations to impose their influence in space (and world) affairs. In the end, what is at stake here is the fragile equilibrium between world peace and tensions, now transported into outer space.

## AT: No one will get involved- not profitable

### Space industry is very profitable- incentives work

Salin 2001 (Patrick A, Professor at the Institute of Air and Space Law McGill University, Montreal, Canada, “Privatization and militarization in the space business environment,” Space Policy 17 (2001) 19}26 Online)

Huge strategic &national' interests are increasingly funded by &non-national' customers worldwide. The only motive for privatizing space projects came from the shrinking of public budgets. Is this a decaying business? No, it is estimated that `satellite communications is a global business with sales and services of $45 billion a year and is growing stronglya [23]. Indeed, some analysts even estimate that it is growing at an annual rate of 20%. Therefore, we may say that the privatization of space ventures is fueling unbridled competition in a domain that is only lightly regulated.

### Privatization is easy- companies will get on board

Garmong 2004 (Robert, Ph.D. in philosophy, was a writer for the Ayn Rand Institute from 2003 to 2004. The Institute promotes the philosophy of Ayn Rand, author of [Atlas Shrugged](http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B) and [The Fountainhead](http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B). “Privatize Space Exploration: The Free-Market Solution For America's Space Program,” June 27th Capitalism Magazine http://www.capitalismmagazine.com/science/space/3763-privatize-space-exploration-the-free-market-solution-for-america-039-s-space-program.html)

Nor would it be difficult to spur the private exploration of space--it's been happening, quietly, for years. The free market works to produce whatever there is demand for, just as it now does with traditional aircraft. Commercial satellite launches are now routine, and could easily be fully privatized. The so-called X Prize, for which SpaceShipOne is competing, offers incentive for private groups to break out of the Earth's atmosphere.

## AT: No One will get involved- Property Rights

### Don’t need property rights to earn profit- companies will still innovate in space despite the right to own.

Tennen 2010 (Leslie I. Esq. Attorney at Law, Sterns and Tennen; former Commissioner, Arizona Space Commission; B.A., with disctinction, 1973, University of Arizona; J.D. 1976, University of Arizona College of Law. This Article is an elaboration of remarks presented to the Conference on Near-Earth Objects: Risks, Responses and Opportunities--Legal Aspects, April 23-24, 2009, Lincoln, Nebraska. “Towards a New Regime for Exploitation of Outer Space Mineral Resources” University of Nebraska Nebraska Law Review  88 Neb. L. Rev. 794 Online)

The ownership of a physical location is not an invariable and necessary requirement for the commercial use of resources. Indeed, claims of fee simple ownership are irrelevant to the profitability of a venture providing products or services derived from celestial resources. [n17](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310702707741&returnToKey=20_T12354182308&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.704464.7246305783" \l "n17) Numerous examples can be found on Earth where an enterprise can be conducted profitably while utilizing resources even without a claim of ownership of a physical area, including grazing leases for livestock, [n18](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310702707741&returnToKey=20_T12354182308&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.704464.7246305783" \l "n18) harvesting of lumber, [n19](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310702707741&returnToKey=20_T12354182308&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.704464.7246305783" \l "n19) and extraction of oil utilizing offshore platforms. [n20](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310702707741&returnToKey=20_T12354182308&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.704464.7246305783" \l "n20) In the context of outer space, Christol has observed that allotments of orbital slots by the International Telecommunications Union ("ITU") have been sold or leased to third parties. The rights to orbital slots granted by the ITU are the rights of use for a defined period of time only, and not a grant of ownership nor dominion for an unlimited duration. [n21](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310702707741&returnToKey=20_T12354182308&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.704464.7246305783" \l "n21) Fee simple ownership of areas of outer space, including the Moon and other celestial bodies, would be relevant only where it is intended that the purported owner generate and derive a profit from the claim of ownership, and the alienation and conveyance of subsidiary interests therein, in exchange for economic consideration. [n22](http://www.lexisnexis.com.ezproxy.samford.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1310702707741&returnToKey=20_T12354182308&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.704464.7246305783" \l "n22)

## AT: Government Key to Innovation

### Not true- government wont undertake the bold initiatives necessary for space exploration

Garmong 2004 (Robert, Ph.D. in philosophy, was a writer for the Ayn Rand Institute from 2003 to 2004. The Institute promotes the philosophy of Ayn Rand, author of [Atlas Shrugged](http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR91B) and [The Fountainhead](http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B" \t "_blank" \o "blocked::http://www.aynrandbookstore.com/prodinfo.asp?number=AR89B). “Privatize Space Exploration: The Free-Market Solution For America's Space Program,” June 27th Capitalism Magazine http://www.capitalismmagazine.com/science/space/3763-privatize-space-exploration-the-free-market-solution-for-america-039-s-space-program.html)

We often hear that the most ambitious projects can only be undertaken by government, but in fact the opposite is true. The more ambitious a project is, the more it demands to be broken into achievable, profit-making steps--and freed from the unavoidable politicizing of government-controlled science. If space development is to be transformed from an expensive national bauble whose central purpose is to assert national pride to a practical industry, it will only be by unleashing the creative force of free and rational minds. We have now made the first steps toward the stars. Before us are enormous technical difficulties, the solution of which will require even more heroic determination than that which tamed the seas and the continents. To solve them, America must unleash its best engineering minds, as only the free market can do.

## AT: Privatization Bad - Space Hege

### Not true- commercial sector solves for US hegemony in Space

Worden, 2004 [Simon, Brigadier General (USAF, Retired), a Fellow in the office of Senator Sam Brownback on detail from the University of Arizona where he is a Research Professor of Astronomy, was Director of Transformation at the Space and Missiles Systems Center, Los Angeles Air Force Base. As the staff officer for initiatives in the first Bush administration's National Space Council, he spearheaded efforts to revitalize our civil space exploration and earth monitoring programs, has written or co-authored more than 150 technical papers in astrophysics, space science and strategic studies, was scientific co-investigator for two NASA space lab missions, Marshall Institute, “Private Sector Opportunities and the President’s Space Exploration Vision” 4-7, http://www.marshall.org/pdf/materials/230.pdf]

I’ll leave you with some final thoughts on space exploration. This time it’s really different. I’ve been involved in past attempts to revitalize space exploration. I want to point out, and we’ve already seen a lot of evidence of this, that the President’s vision is not just about a government program. Some, maybe even most of the heavy lifting, in terms of funds, may end up being done by the true private sector. The government’s role will be to develop the supporting technology and infrastructure, much as we did in decades past. I want to leave you with a final thought on a rationale for our renewed space exploration endeavor. This is for those who wonder why we are pursing this Moon-Mars program when we have other pressing problems. The new focus really is a recognition that the rest of the world is going into space. That’s pretty obvious. Countries that we didn’t traditionally think of as space-faring, such as India and China, are going to the moon. Having future generations of Americans ask “Why are other countries’ people walking on the moon, going to Mars and we are not?” would have devastating consequences for our national psyche. America’s destiny has always been to lead in the frontier. This is one frontier I think we can’t afford to cede to other. As we think about the private sector, I think that the motivation is with us all to ensure we continue to lead in space exploration.

### Privatization solves space leadership

Nelson 11 (Steve, Nelson is a staff writer for the daily caller, “Fiscal Conservatives call for increased privatization of space”, http://dailycaller.com/2011/02/08/fiscal-conservatives-call-for-increased-privatization-of-space/, 2-8)

Tuesday morning the Competitive Space Task Force, a self-described group of fiscal conservatives and free-market leaders, hosted a press conference to encourage increased privatization of the space industry. Members of the task force issued several recommendations to Congress, including finding an American replacement to the Space Shuttle (so to minimize the costly expenditures on use of Russian spacecraft) and encouraging more private investment in the development of manned spacecraft. Former Republican Rep. Robert S. Walker of Pennsylvania said, “If we really want to ‘win the future’, we cannot abandon our commitment to space exploration and human spaceflight. The fastest path to space is not through Moscow, but through the American entrepreneur.” Task Force chairman Rand Simberg, of the Competitive Enterprise Institute, said, “By opening space up to the American people and their enterprises, NASA can ignite an economic, technological, and innovation renaissance, and the United States will regain its rightful place as the world leader in space.”

### Heg doesn’t solve conflict

Hachigan and Sutphen 2008

(Nina and Monica, Stanford Center for International Security, The Next American Century, p. 168-9)

 In practice, the strategy of primacy failed to deliver. While the fact of being the world’s only superpower has substantial benefits, a national security strategy based on suing and ratiaing primacy has not made America more secure. America’s military might has not been the answer to terrorism, disease, climate change, or proliferation. Iraq, Iran, and North Korea have become more dangerous in the last seven years, not less. Worse than being ineffective with transnational threats and smaller powers, a strategy of maintaining primacy is counterproductive when it comes to pivotal powers. If America makes primacy the main goal of its national security strategy, then why shouldn’t the pivotal powers do the same? A goal of primacy signals that sheer strength is most critical to security. American cannot trumpet its desire to dominate the world military and then question why China is modernizing its military.

## AT: Privatization Bad- Space Debris

### Privatization has no impact on space debris- two reasons

Dinkin 04 (Sam, Dinkin is a regular columnist for the space review, “Space Privatization: Road to Freedom”, http://www.thespacereview.com/article/193/1, 7-26)

In any case, there are two reasons that privatization will not substantially change the space debris situation. First, this debris problem will continue if space remains the preserve of big government even with business as usual. Second, regulations, such as the new FCC regulations for a minimum amount of propellant to continue broadcasting, allow the government to keep the debris situation under control.

### Collisions will be few and far between for 200 years

National Post 2006 (Canada, “Space junk endangering launches: Risk of collisions with satellites expected to triple within 200 years”, 1-20, Lexis)

The future commercialization of space could be jeopardized because the amount of debris is expected to rise dramatically after 2055, say the authors of a new U.S. Space Agency computer simulation published in today's edition of the journal Science. The "Leo-to-Geo Environmental Debris" model, or LEGEND, created by scientists at NASA's Johnson Space Center in Houston, Tex., shows the number of collisions will triple within 200 years. There have been at least three minor documented collisions so far, starting with a 1986 crash between a Soviet rocket and a French military probe. More junk in space increases the odds of the world's first "catastrophic" collisions between larger fragments. Those would shatter into thousands of tiny pieces, then keep colliding to create widening debris fields that could "pollute" space for hundreds of years. Alternatively, the debris could plunge to Earth on uncontrollable trajectories. "It's like a snowball effect," said J.C. Liou, a planetary scientist who developed the three-dimensional simulation. Hurtling through zero gravity between 10 and 20 kilometres a second, each fragment packs more than 10 times the punch of a speeding bullet. "The outcome would be quite severe." A model developed by the scientist predicts catastrophic collisions will begin occurring at least every 20 years -- and that's the "best-case" scenario. The model conservatively assumes no satellites will launch into space for the next 200 years; in fact, about 100 are launched annually. In the worst-case scenario, China, which recently set up its own space-junk monitoring station, says that beyond the year 2300, every satellite or manned mission in low Earth orbit will risk a collision with space debris.

### Debris threat is massively exaggerated

The Washington Times 2007 (James Hackett, “Much ado about space debris”, Lexis)

China's deliberate destruction of one of its own satellites in a January test of an anti-satellite (ASAT) weapon has led to much hand-wringing about the creation of space debris, reinvigorating the opponents of weapons in space. Orbiting debris is dangerous, but the danger has been greatly exaggerated and is no reason for new unenforceable arms control agreements. When the space age began 50 years ago there were no man-made objects in space. Since then, Space Command has tracked more than 25,000 objects of baseball size or larger. More than 10,000 have fallen into the atmosphere and disintegrated or landed, but in 50 years not one person anywhere on Earth has been killed or injured by falling debris. Space debris is only slightly more likely to strike one of the 850 active spacecraft. Most are in low Earth orbit below about 800 miles. These operational spacecraft are only 6 percent of the objects tracked. The rest is space junk that includes inactive satellites, spent rockets, debris from exploding rockets and just plain trash. Space Command monitors debris to identify threats and alerts operators of satellites to move out of the way if they appear to be in danger. Some 80 percent of debris orbits between 500 and 600 miles altitude. The Chinese test, at 527 miles, created more debris right where traffic is heaviest. Air Force Space Command is tracking more than 1,000 pieces of debris from the Chinese test, plus 14,000 that were there before. So far, none has hit an active spacecraft. In fact, over the last 50 years there have been only three documented debris impacts with operational spacecraft, and none have been destroyed. A Space Command Web site describing the Space Surveillance Network that tracks debris notes there is only a small amount in the low orbits of the space shuttle and space station, and gives a worst-case estimate of 1 chance in 10,000 years of a piece of debris of baseball size or larger hitting either one. Even in the debris-heavy area around 500 miles altitude, Space Command says normally there are only three or four objects orbiting in an area equivalent to the airspace over the continental United States up to an altitude of 30,000 feet. Thus, it states, the likelihood of a collision is very small. Now there are reports U.S. intelligence agencies knew about and monitored Chinese preparations for the ASAT test, but senior administration officials decided to say nothing to deter Beijing in orderto protect intelligence methods. That shows that despite the anguish about space debris the creation of more was not considered a serious danger. Most debris eventually migrates down and burns up in the atmosphere. The main efforts are to avoid existing debris, design spacecraft and rockets that will not explode in space, limit the release of debris on orbit, and at the end of their mission de-orbit satellites or move them to parking orbits where there is little traffic.

## AT: Privatization Bad- Weaponization

### Space weaponization is inevitable – it can’t be reversed

Dolman 06 [Everett, ‘U.S. Military Transformation and Weapons in Space’, *SAIS Review:* vol. 26, no. 1; http://muse.jhu.edu/journals/sais\_review/v026/26.1dolman.pdf]

Space weaponization is a critical and necessary component in the process of transformation well under way, a process that cannot be reversed. Now that America has demonstrated the capacity to strike precisely, it would not return to the kind of indiscriminant targeting and heavy collateral dam- age that characterized pre-space warfare unless it were engaged in a war of national survival. Moreover, any technological, economic or social benefits to be derived from developing and deploying weapons certainly would not come from increasing the stock of current systems. They would come, if at all, only from the development of innovative, highly complex and scientifically sophisticated space, stealth, precision, and information systems. As leader of the international community, the United States finds itself in the unenviable position of having to make decisions for the good of all. On the issue of space weaponization, a single best option is elusive. No matter the choice, some parties will benefit and others will suffer. The tragedy of American power is that it must make a choice, and the worst choice is to do nothing. Fortunately, the United States has a great advantage — its people’s moral ambiguity about the use of power. There is no question that corrupted power is dangerous, but perhaps only Americans are so concerned with the possibility that they themselves will be corrupted. They fear what they could become. No other state has such potential for self-restraint. It is this introspection, this self-angst that makes America the best choice to lead the world today and tomorrow. America is not perfect, but perhaps it is perfectible. Space weapons, along with the parallel development of information, precision, and stealth capabilities, represent a true revolution in military affairs. These technologies and capabilities will propel the world into an uncertain New Age. Only a spasm of nuclear nihilism could curtail this future. By moving forward against the fears of the many, and harnessing these new technologies to a forward-looking strategy of cooperative advantage for all, the United States has the potential to initiate mankind’s first global golden age. The nature of international relations and the lessons of history dictate that such a course begin with the vision and will of a few acting in the benefit of all.

### Congress gave Pentagon funding for new space weapon program

Walter Pincus, National security and intelligence reporter at Washington Post, November 12, 2007, “Space Defense Program Gets Extra Funding”, Washington Post Page A19, <http://www.washingtonpost.com/wp-dyn/content/article/2007/11/11/AR2007111101173.html> [Bapodra]

While wrestling with wars in Iraq and Afghanistan, the Pentagon is preparing weapons to fight the next battle from space, according to information in the 621-page, House-Senate conference report on the fiscal 2008 defense appropriations bill. The $459 billion bill, which awaits President Bush's signature, provides $100 million for a new "prompt global strike" program that could deliver a conventional, precision-guided warhead anywhere in the world within two hours. It takes funds away from development of a conventional warhead for the Navy's submarine-launched Trident Intercontinental Ballistic Missile and from an Air Force plan for the Common Aero Vehicle. The new program, dubbed Falcon, for "Force Application and Launch from CONUS," centers on a small-launch-vehicle concept of the Defense Advanced Research Projects Agency. The agency describes Falcon as a "a reusable Hypersonic Cruise Vehicle (HCV) capable of delivering 12,000 pounds of payload at a distance of 9,000 nautical miles from [the continental United States] in less than two hours." Hypersonic speed is far greater than the speed of sound. The reusable vehicle being contemplated would "provide the country with significant capability to conduct responsive missions with quick turn-around sortie rates while providing aircraft-like operability and mission-recall capability," according to DARPA. The vehicle would be launched into space on a rocket, fly on its own to a target, deliver its payload and return to Earth. In the short term, a small launch rocket is being developed as part of Falcon. It eventually would be able to boost the hypersonic vehicle into space. But in the interim, it will be used to launch small satellites within 48 hours' notice at a cost of less than $5 million a shot

## AT: Privatization Bad- International Law

### No impact – Medellin proves non-adherence doesn’t spark impacts.

Bader 9. DC Scotus Examiner Supreme Court Justice's inconsistency on international law

http://www.examiner.com/x-7812-DC-SCOTUS-Examiner~y2009m4d13-Supreme-Court-Justices-Hypocrisy-on-International-Law

It is hard to fight these claims even when they are false, because ordinary people (and even most lawyers) don’t know much about foreign law. The lawyers who fashion “customary international law” are thus largely [unaccountable](http://volokh.com/archives/archive_2008_03_23-2008_03_29.shtml#1206570143). Perhaps as a result, customary international law is generally of [poorer quality than domestic law](http://www.law.gmu.edu/assets/files/publications/working_papers/08-19%20Democracy%20&%20International.pdf). Scholars have [cited this fact in celebrating the Supreme Court’s recent decision in Medellin v. Texas (2008)](http://volokh.com/archives/archive_2008_03_23-2008_03_29.shtml#1206501266), which refused to make Texas hear yet another challenge to a murderer’s conviction (which had already twice been upheld by different court systems) when ordered to do so by the International Court of Justice (a ruling at odds with the fact that virtually all ICJ member countries permit only one appeal of a conviction, not successive appeals).

### International law isn’t key to global cooperation to solve transnational problems

Estreicher, Law Professor at NYU, 3 (Samuel, “Rethinking the Binding Effect of Customary International Law,” Virginia Journal of International Law Association, Fall, 44 Va. J. Int'l L. 5)

As for the subsidiary law that an increasingly interdependent world needs in advance of treaties, traditional CIL could not easily play this role as it was essentially backwards looking. The new, instantaneous customary law tries to play this role, but in a way that hardly comports with legitimacy. Without relying on CIL, states, international organizations, and other actors have ample means of identifying problems requiring interstate cooperation, drafting instruments that might command state support, and marshaling the forces of moral suasion. It is hard to see that the "law" aspiration of CIL offers the prospect of a significant incremental gain. In any event, the ultimate question is whether any such benefit warrants the accompanying costs - to which I now turn.

# ====NASA Specific====

## NASA Fails Frontline

### NASA Fails- inefficient- and wasteful

Hudgins 2001 *(*Edward L., director of regulatory studies – CATO, Cato Handbook for Congress: Policy Recommendations for the 107th Congress (2001) http://www.cato.org/pubs/handbook/hb107/hb107-35.pdf)

NASA has publicized as ‘‘ faster, better, cheaper’’ such missions as the $150 million *Pathfinder* that landed on Mars and the $154 million Mars Surveyor Orbiter. Those missions have yielded important scientific returns. But NASA could not mask its embarrassment when the $125 million Mars Climate Orbiter was lost after reaching the Red Planet because technicians neglected to convert crucial numbers from English to metric units. And in any case, such crumbs thrown to scientists divert attention from the fact that NASA hinders the advance of space science and commercial space development as surely as economic planning in communist countries undermined prosperity. The space program and NASA were born of the Cold War race with the Soviet Union. In the late 1950s many Americans believed that only governments could undertake such endeavors. The lunar landings will forever be celebrated as great human and technological achievements. Yet today NASA is wasteful and inefficient, squandering the public’s goodwill and $13.5 billion annually. While the government has a legitimate defense role in space, commercial ventures, and most scientific research and exploration, ideally should be left to the private sector.

### NASA Fails- Laundry list

Michalowski & Kramer, 2006 (Raymond and Ronald, 2006, State-Corporate Crime: Wrongdoing at the Intersection of Business and Government (Critical Issues in Crime and Society), Raymond is Regents' Professor of Criminal Justice at the Department of Criminology and Criminal Justice at Northern Arizona University, Professor of Sociology and Director of the Criminal Justice Program at Western Michigan University,)

Finally, the data presented here provide a good measure of empirical support for the integrated theoretical model of organizational crime that is emerging in the literature. The Challenger case study provides general support for the hypothesis that criminal or deviant behavior at the organizational level results from a coincidence of pressure for goal attainment, availability and perceived attractiveness of illegitimate means**,** and an absence of effectivesocial control. In this case, the external political pressure on NASAandtheinternal organizational motivation of the agency combined to create an unreasonable launch-rate schedule that placed enormous pressure on the organization to attain the goals set by itself and others. When information about the faulty design of the solid rocket booster and the potential effects of cold weather on the O-rings was received by NSA, the agency could no longer launch the shuttle safely according to its own organizational standards. NASA, however, with the concurrence of MTI, made the decision to keep flying the shuttle fleet, and specifically to launch the *Challenger* on January 28, 1986, despite the lack of safe means**.** The absence of effective social control mechanisms at NASA**,** both external and internal, has been well documented.

### NASA Fails bureaucracy makes the best scientists useless

Gessing 2004 (Paul, Director, Government Affairs, National Taxpayers Union, Chicago tribune, “Give tax incentives to investors of space ventures,” Jan 16th http://articles.chicagotribune.com/2004-01-16/news/0401160354\_1\_ideal-policies-space-agency-manned)

No matter how much money is poured into the space agency, NASA will always be hampered by the fact that it hires some of the finest technical minds in the world and then burdens them with useless and contradictory rules that are the product of Congress' need for political expediency and tendency to meddle. Description: http://articles.chicagotribune.com/images/pixel.gif Description: http://articles.chicagotribune.com/images/pixel.gif Manned space flight may or may not be the most efficient and cheapest means of exploring outer space, but the contrast between the Spirit rover's success in photographing Mars and the agency's checkered history with manned missions is striking. NASA's government-sponsored space research monopoly, however, makes both learning from past mistakes and financial prudence a challenge. Before digging the nation further into debt with a costly mission to Mars, President Bush and Congress should embark on significant legislative reforms that will make space exploration safer and more cost-effective. The Invest in Space Now Act is one initiative that would provide tax incentives to investors willing to back private space ventures. While tax credits aren't always ideal policies, this proposal is a far better alternative than pumping more funds into the federal space monopoly.

### NASA Fails- poor leadership and management

Hall, 2007 (Jeremy, assistant professor of public affairs at the University of Texas at Dallas, “Implications of Success and Persistence for Public Sector Performance”, August 2, Public Organization Review)

Romzek and Dubnick (1987) go beyond the managerial and technical issues at hand in the Challenger disaster to suggest that the larger institutional constraints on NASA led to a focus on bureaucratic and political aspects of accountability to the detriment of professional accountability. Indeed, that trend suggests an agency-wide culture in which strategic persistence led to a steady decline in the importance placed on alternate methods of accountability. The strategy that made NASA successful caused it to fail under a unique set of environmental circumstances. According to the final report of the Shuttle Columbia disaster released on September 26, 2003, the cause of the disaster was found to be NASA’s management culture. Interestingly enough, the report states that NASA failed to make changes to its organizational culture following the 1986 Shuttle Challenger disaster (Columbia Accident Investigation Board 2003). In short, NASA had not altered its strategies to the changed environment over the past 18 years, with organizational failure as the result. Implications of Success and Persistence for Public Sector Performance 293 Discussion This study has taken steps to explain the relationship, in the public sector, of success to persistence and the relationship of persistence to subsequent performance, given an exogenous environmental change. One question that should be addressed is why NASA altered its previously successful strategies with regard to one environmental change, but persisted with such strategies under another. Perhaps the answer lies in the type of environmental change—one was political, the other natural. It is possible that these differences affected the value placed on different types of information, or alternatively that information was collected strictly for symbolic purposes. Public agencies may respond differently to different types of changes in their environments. Moreover, in light of the theory of organizational simplicity, this may reflect a tendency of organizational leaders to seek out information about some aspects of their environment and not others. For example, government officials are certainly expected to be attuned to political pressure affecting their organization, but they may not actively seek other types of information. Another possibility is that the nature of the costs was more or less understood by NASA for one environmental change, but not the other. Strategic persistence in the first case entailed delays (the first strategy being to allow technical experts the ability to delay launches), for which there were financial costs associated with contract labor, salaries, etc. Government agencies understand budgets particularly well. The second environmental change would not have mattered if the agency had not adapted to the first change. The strategy that was in play during the second change was to launch in spite of technical risk. Perhaps NASA did not fully understand the results that meteorological events might incite, nor the financial costs and injury to the agency’s reputation, that were possible. Finally, the difference may be a result of the way success was measured at different times in the agency’s history; it is easier to quantify financial costs than safety. The range of possible explanations suggests that, while the theory is viable, additional research is needed to better understand how strategic persistence plays out in governments during periods of environmental change

### NASA Fails- aversion to risk means all missions will be unsuccessful

Schmitt 2003 (Hon. Harrison H doctorate in Geology from Harvard, was accepted into NASA’s Scientist-Astronaut program in 1965. In 1972, he served on the three-man crew of Apollo 17, the last U.S. mission to the moonSenate Committee of Commerce INTERLUNE-INTERMARS INITIATIVE, INC. Testimony of Hon. Harrison H. Schmitt: Senate Hearing on "Lunar Exploration" November 6, http://www.spaceref.com/news/viewsr.html?pid=10924)

If Government were to lead a return to deep space, the NASA of today is probably not the agency to undertake a significant new program to return humans to deep space, particularly the Moon and then to Mars. NASA today lacks the critical mass of youthful energy and imagination required for work in deep space. It also has become too bureaucratic and too risk-adverse. Either a new agency would need to be created to implement such a program or NASA would need to be totally restructured using the lessons of what has worked and has not worked since it was created 45 years ago. Of particular importance would be the need for most of the agency to be made up of engineers and technicians in their 20s and managers in their 30s, the re-institution of design engineering activities in parallel with those of contractors, and the streamlining of management responsibility. The existing NASA also would need to undergo a major restructuring and streamlining of its program management, risk management, and financial management structures. Such total restructuring would be necessary to re-create the competence and discipline necessary to operate successfully in the much higher risk and more complex deep space environment relative to that in near-earth orbit.

## ----Ext. NASA Fails- Bureaucracy

### NASA Fails- Funding tied to government control- Free Market Solves

Hearsey 2008 (Christopher M. Graduate Student, The American University, Department of Justice, Law & Society The American University, Washington, A Review Of Challenges To Corporate Expansion Into Outer Space http://www.astrosociology.org/Library/PDF/Hearsey\_CorporateExpansion.pdf)

The success of NASA has been mixed. Commentators have pointed out that NASA is “a federal administrative agency and therefore susceptible to many problems faced by government bureaucracies.”\*\* In the early years, NASA’s budget was based upon performance rather than cost. The agency alone spent an estimated $170 billion (in 2005 dollars) on the Apollo program.†† The total cost of a single Space Transport System, or Space Shuttle, is around $1.5 billion.‡‡ Since the Shuttle began operating in 1981, NASA has been criticized for dedicating too much money to a program with small benefits relative to other programs. Current NASA Administrator Dr. Michael Griffin said in a 2005 interview with USA Today that NASA lost its way in the 1970’s after the end of the Apollo program. Dr. Griffin believes the Shuttle program and the International Space Station (ISS) were mistakes.§§ As such, NASA has developed a “new vision” outlined by President Bush in 2005 calling for a return to the Moon and the decommissioning of the Shuttle fleet by 2010.\*\*\* This “new vision for space exploration” has been seen as the next step in the development of the commercial space industry. As government operations in outer space recede into a regulatory and contracting role, corporations will be able to design new innovative products from infrastructure to launch vehicles ending decades of government control in all aspects of outer space operations.

## ----Ext. NASA Fails- Missions

### NASA Fails at Exploration/Development

Pelton, 2010 (Joseph N. Space & Advanced Communications Research Institute, George Washington University, May, “A new space vision for NASA—And for space entrepreneurs too?” Space Policy, p.79)

One might think that, since Muskwas seeking to develop his own launch capability, he was exaggerating; but a review of the record suggests otherwise. Today nearly 25 years after the Rogers and Paine Commission reports that followed the Challenger disaster, we find that the recommendations for NASA to develop a reliable and costeffective vehicle to replace the Shuttle is somewhere between being a disappointment and a fiasco. Billions of dollars have gone into various spaceplane and reusable launch vehicle developments by NASA over the past 20 years. Spaceplane projects have been started by NASA time and again amid great fanfare and major expectations and then a few years later either cancelled in failure or closed out with a whimper. The programs that NASA has given up on now include the Delta Clipper, the HL-20, X-33, the X-34, X-37, X-38, and X-43 after billions of US funds and billions more of private money have been sacrificed to the cause.

# ====Politics Links ====

## Privatization Popular

### Congress supports privatization – key space leaders

Moskowitz 2011 (Clara, – senior writer for Live Science and Space.com “55 Space Leaders to Congress: Support Private Spaceflight Now”, http://www.space.com/11021-nasa-budget-congress-commercial-spaceflight.html)

A group of more than 55 space leaders is petitioning Congress to support commercial spaceflight in an open letter this week. The plea comes as lawmakers are debating a new federal budget, including the question of how much money to devote to NASA. President Obama and NASA chief Charlie Bolden are advocating for more funds to spur the development of private spaceships to replace the iconic space shuttle as the flagship of U.S. astronaut transportation to the International Space Station. That plan, they say, would allow NASA to invest in a longer-term project to build a rocket that can carry astronauts beyond low-Earth orbit to asteroids and Mars. But some members of Congress want NASA to spend less on commercial spaceflight and divert those funds to building its own next-generation spacecraft. [What Obama and Congress Should Do for Spaceflight] The signatories of the new letter, which is dated March 1, come out firmly for the former plan. "By creating competition, and using fixed price contracts, NASA’s commercial crew program offers a much less expensive way of transporting NASA astronauts to the station than any other domestic means," they wrote. "Funding NASA’s Commercial Crew program would lower the cost of access to low Earth orbit, thus enabling more of NASA’s budget to be applied to its focus on exploration beyond low Earth orbit."

### Privatization popular- spun as creating Jobs

Dyson 2010, (Esther chairman of EDventure Holdings and an investor in a variety of start-ups, 2/8/, “Prepare for Liftoff,” Foreign Policy, http://www.foreignpolicy.com/articles/2010/02/08/prepare\_for\_liftoff?page=0,1)

Politically, the fuss is mainly about jobs that can help politicians get elected, and not about space exploration itself. The simple solution is some promise that the jobs will not be lost; they will simply be transformed. If no commercial company is willing to hire these workers, then perhaps they could retrain as teachers, an area where the United States desperately needs more scientists and technical people, or in medicine, which requires the same meticulous attention to detail. But the commercial space market will need at least some of them. President Obama and all of us who want to focus on the future should not forget how good the private sector can be at creating both jobs and opportunities.

### New Budget Proves its Popular

Morring 2011 (Frank Jr, Writer for Aviation Week, 2/15/, “NASA Wants Commercial Crew, Technology,” Aviation Week, http://www.aviationweek.com/aw/generic/story\_channel.jsp?channel=space&id=news/awx/2011/02/14/awx\_02\_14\_2011\_p0-289550.xml

In a bid to follow President Barack Obama’s overall science and technology policy, the new budget aims to create “a sustainable program of exploration and innovation,” according to Administrator Charles Bolden’s introduction to the strategic plan that accompanies the budget request. “This new direction extends the life of the International Space Station, supports the growing commercial space industry, and addresses important scientific challenges while continuing our commitment to robust human space exploration, science and aeronautics programs,” Bolden states. “The strong bipartisan support for the NASA Authorization Act of 2010 confirms our essential role in addressing the nation’s priorities.” The government’s effort to seed private development of commercial crew and cargo transportation to the ISS and other LEO destinations would be boosted to $850 million in the fiscal year that begins Oct. 1 — up from the $612 million authorized but not appropriated in the current fiscal year.

## Privatization Popular- GOP

### Republicans support privatization

Kaffsack 1998 (Hanns-Jochen, Staff writer for the Deutsche Presse-Agentur “The future of America's space programme - privatisation?”, lexis 9/10)

The Republicans are demanding that the space programme be privatised sometime in the 21st century. The U.S. space agency NASA is caught between the government and the opposition. Since 1994, its budget has shrunk by about 1 billion dollars to 13.6 billion dollars. "This administration has been indifferent to the challenge of space," said opposition leader and House Speaker Newt Gingrich in an interview with Congressional Quarterly. Gingrich would like to see a national conference on space next year, to reestablish America's leading role in space. For his Republican Party this means opening up space to privatisation. The aimlessness of U.S. space policy has earned the criticism not not only of the administration's political enemies, but also the country's space enthusiasts. Many are demanding that the White House provide a new dynamism and vision of the kind shown by John F. Kennedy, who focused NASA's efforts on putting a man on the moon.

## Tax Incentives Popular

### Tax incentives for business development in space are popular with Congress.

Hearsey 2008 (Christopher M. Graduate Student, The American University, Department of Justice, Law & Society The American University, Washington, A Review Of Challenges To Corporate Expansion Into Outer Space http://www.astrosociology.org/Library/PDF/Hearsey\_CorporateExpansion.pdf)

There is some support in Congress for Mr. Andrews’ proposals. The proposed Zero-Gravity, Zero Tax Act of 2001 25 contains many of the features Mr. Andrews proposes. \*\*\*\*\*\*\*\*\*\*\*\*\* Though, the central question is whether the tax proposal creates a subsidy of sufficient power to attract investors. If passed, it is questionable whether the act would have an effect, given the difficulties of making a profit in space. Even so, Mr. Andrews’s proposal seems the logical path to take. A short period moratorium on income from outer space operations seems reasonable in light of the prohibitive research and development costs, and limitations on transfer technology licensing. It could spur investment capital, which can be reinvested in developing innovative technologies.

### Tax incentives popular- No Spending

Baker 2010, (Leroy Tax-News.com, 8/19/, “Tax Breaks to Boost Private Space Exploration,” http://www.usa-tax-news.com/story/Tax\_Breaks\_To\_Boost\_Private\_Space\_Exploration\_\_\_\_44876.html)

United States Senator Bill Nelson has announced legislation that would offer major tax and other incentives to encourage growth in the private space exploration industry. Nelson's plan would create up to five regional business enterprise zones around the country as "magnets for commercial space ventures." As it grapples with record federal deficits, the Obama administration no longer perceives the funding of space exploration a priority and is cancelling the space shuttle program. One more shuttle flight is scheduled for next year after the Senate approved a bill to provide additional funding to the program, but a cloud of uncertainty currently hangs over the US space industry, not to mention the hundreds of high technology firms supplying equipment to the US space program. Nelson's bill, known as the Commercial Space Jobs and Investment Act of 2010 would create a new 'commercial space capital formation credit' allowing investors to claim a tax credit worth 20% of their equity investment in a business producing equipment such as launch vehicles and re-entry vehicles. The equity investment would have to be held for a minimum of five years for the investor to qualify for the tax credit.

## Prizes Popular

### Prizes popular- doesn’t spend money

Space Settlement institute 2010 (Space settlement prize act, http://www.space-settlement-institute.org/space-settlement-prize-act.html)

The Space Settlement Prize Act would cost politicians nothing at all to pass. Not one dime is required from the U.S. budget, and in fact the burgeoning space activity should provide a big boost to certain sectors of the economy. One reason the legislation is not on their radar screen, however, is the contentious nature of the international space laws that currently exist. The good news is that researchers at The Space Settlement Institute have found solutions and legal precedents that address every major objection. The objective now is to find individuals with the necessary connections to bring the legislation from a draft into real law. This is a hugely difficult mandate and help is needed.

## Privatization Unpopular

### Privatization is unpopular and destroys industrial base

Smith 2000(Julie, “Star trek, the next generation” Globe and Mail, 1-1, http://www.lexisnexis.com/hottopics/lnacademic/)

For residents of Brevard County, an hour's drive from Orlando, the demise of the shuttle program leaves a gap the private sector won't fill. SpaceX builds its Falcon 9 rockets in California; Orbital Sciences, which has a $1.9-billion (U.S.) contract with NASA, builds its rockets in Virginia. Besides, unmanned, single-use launch vehicles aren't nearly as hungry for manpower as the shuttle, which had to be partially disassembled and refurbished before each mission. Once the shuttle Endeavour returns from her final mission this spring, an estimated 7,000 NASA employees and contractors will be out of work. Factor in subcontractors and related industries, and as many as 20,000 jobs will disappear. For now, NASA has no big-ticket program to replace the shuttle, either. Hopes of a partial reprieve were dashed last year when Barack Obama axed the Constellation program, which was supposed to return Americans to the moon on a new generation of mega-rockets. To some, it seems like history repeating itself: When the Apollo program shut down in 1975, the regional population dropped by 10,000.

### They’ll balk: too radical

WSJ ‘10 (Wall Street Journal, January 24, “White House Decides to Outsource NASA Work”, http://online.wsj.com/article/SB10001424052748704375604575023530543103488.html, MinR)

The controversial proposal, expected to be included in the Obama administration's next budget, would open a new chapter in the U.S. space program. The goal is to set up a multiyear, multi-billion-dollar initiative allowing private firms, including some start-ups, to compete to build and operate spacecraft capable of ferrying U.S. astronauts into orbit—and eventually deeper into the solar system. Congress is **likely to** challenge the concept's safety and **may balk** at shifting dollars from existing National Aeronautics and Space Administration programs already hurting for funding to the new initiative. The White House's ultimate commitment to the initiative is murky, according to these people, because the budget isn't expected to outline a clear, long-term funding plan. The White House's NASA budget also envisions stepped-up support for climate-monitoring and environmental projects, along with enhanced international cooperation across both manned and unmanned programs. Press officials for NASA and the White House have declined to comment. Industry and government officials have talked about the direction of the next NASA budget, but declined to be identified. The idea of outsourcing a portion of NASA's manned space program to the private sector gained momentum after recommendations from a presidential panel appointed last year. The panel, chaired by former Lockheed Martin Corp. Chairman Norman Augustine, argued that allowing companies to build and launch their own rockets and spacecraft to carry American astronauts into orbit would save money and also free up NASA to focus on more ambitious, longer-term goals. However, **many in NASA's old guard oppose the plan**. Charles Precourt, a former chief of NASA's astronaut corps who is now a senior executive at aerospace and defense firm Alliant Techsystems Inc., said that farming out large portions of the manned space program to private firms would be a "really radical" and an "extremely high risk" path. Unless the overall budget goes up, he said, whatever new direction NASA pursues "isn't going to be viable."

### Privatization unpopular with Congress

Foust 2010 (Jeff, editor and publisher of The Space Review “Can commercial space win over Congress?”, <http://www.thespacereview.com/article/1592/1> 3/22)

When the White House unveiled its new plan for NASA last month as part of its 2011 budget proposal, presumably they knew to expect some opposition from Congress, particularly from those representing districts and states that benefitted from Constellation. Perhaps, though, they thought they could win some support from across the aisle for one aspect of the plan: development of commercial systems to ferry astronauts to low Earth orbit. After all, the logic likely went, Republicans have long supported free enterprise and efforts to turn government programs over to the private sector; surely they could support this? That hasn’t been the case. By and large Republicans and Democrats alike have expressed skepticism at best—and dismay and even outrage at worst—about that aspect of the plan, despite its endorsement by, among others, former Republican House speaker Newt Gingrich and former House Science Committee chairman Robert Walker. In Congressional hearings since the plan’s announcement only Rep. Dana Rohrabacher (R-CA), long an advocate for space commercialization, wholeheartedly endorsed development of commercial crew capabilities. With a new set of hearings coming up this week by powerful House and Senate appropriators, it is still an open question whether that aspect of the plan can survive a bruising battle in Congress over the next several months.

### Congress backlashes against the CP -- costs capital.

Hopkins, 2001 – (Mark, led the legislative efforts of the L5 Society and, later, NSS and its affiliated organizations. He has been an officer of L5 /NSS for 20 of the previous 24 years and was instrumental in the merger, which created the National Space Society in 1987. Hopkins, a California Institute of Technology and Harvard educated economist, has written numerous articles concerning space economics January/February 2001, “ Economic Barriers to Space Settlement,” <http://www.nss.org/settlement/roadmap/economic.html>)

Few other democratic nations are doing business this way. They have multi-year funding. Why hasn't the United States already dealt with this problem? In a word, politics. There is a broad consensus in the industry that a change to multi-year funding would substantially improve the efficiency of major space projects. However, it would also reduce congressional power. Members of Congress would give up a great degree of control and sacrifice campaign fundraising leverage. Asking any legislative body to vote to reduce its influence is asking a lot. Overcoming this economic barrier will require making a strong and persistent case based on international precedent, long-term savings, and more efficient results.

### CP links to politics – private space exploration controversial.

Logsdon 2011, John M Space Policy Institute, Elliott School of International Affairs, George Washington University, February 2011, “A new US approach to human spaceflight?” Space Policy, p.15)

The Obama proposal came under immediate attack from members of Congress whose districts would be affected by the new strategy, firms that were threatened by the cancellation of their Constellation contracts, and spaceflight veterans, including several Apollo astronauts. The criticisms focused on the viability of relying on the private sector for crew transport to the ISS and the lack of specific goals and schedules for deep space exploration missions. Senator Richard Shelby (R-AL) succeeded in getting a provision written into law that prohibited NASA from cancelling any Constellation contracts and from starting the new programs proposed by the president until the Congress completed action on the FY2011 budget proposal and had either approved, rejected or modified the new human spaceflight strategy.

## Privatization Unpopular- GOP

### GOP won’t like: jobs taken away

WARD ‘10 (Katherine Mangu, Senior editor of Reason magazine and Reason.com, graduate of Yale University, where she received a B.A, in political science and philosophy, September 15, “When It Comes to Space, House Republicans Prefer Big Government”, http://reason.com/blog/2010/09/15/when-it-comes-to-space-house-r, MinR)

Remember when President Obama admitted that the whole Bush-era "We're totally going to Mars and NASA is going to take us there!" plan was a bit, well, pie in the sky? Quite sensibly, Obama suggested that rather than continuing to fund a large and expensive government program that has yielded little for the last two decades, we should give private companies a shot at figuring out ways to get Americans off the planet for trips to the International Space Station and other appropriate off-worldly occasions. But Congress was wary of letting space jobs leave their districts, and the Senate wound up offering a compromise plan incorporating elements of Obama's plan, while preserving constituent-friendly legacy programs, including various components of the defunct shuttle program. The House version of the bill, which may be up for a vote as soon as this week, goes even farther to preserve the dysfunctional status quo. It would slash the cash available to private firms from the Obama-recommended figure for development of a vehicle to take American crews into orbit from $6 billion to a mere $250 million. It restores the inefficient and duplicative Ares I rocket program from Bush's Constellation program, and cuts other incentives for development of private commercial alternative vehicles **to the bone**. So who is standing in the way to the push to wrest the space sector from the hands of government bureaucrats and put it in the hands of entrepreneurs? The Christian Science Monitor sums the situation up nicely: The debate essentially pits so-called "new space" advocates and entrepreneurs against some long-established aerospace interests. Ironically, the situation finds some **key Republican lawmakers** supporting a (relatively) large government-only approach to human spaceflight instead of supporting a budding and increasingly competent private-sector approach, as the Democratic president has proposed.

## Phasing out NASA Unpopular

### Phase out of NASA unpopular

DISCOVER, 2010 [Discover Magazine, “Obama’s NASA Budget: So Long, Moon Missions; Hello, Private Spaceflight,” 2-10, http://blogs.discovermagazine.com/80beats/2010/02/01/obamas-nasa-budget-so-long-moon-missions-hello-private-spaceflight/]

However, the White House’s plan to shift to private spaceflight has already ruffled plenty of feathers. Congressional representatives from states with many NASA jobs, like Florida and Texas, have promised to fight the move all the way. Michael Griffin, the previous NASA administrator who served under President George W. Bush, was even more bitter at seeing Obama cut his prized program: “It means that essentially the U.S. has decided that they’re not going to be a significant player in human space flight for the foreseeable future… One day it will be like commercial airline travel, just not yet. It’s like 1920. Lindbergh hasn’t flown the Atlantic, and they’re trying to sell 747s to Pan Am” [Washington Post].

### CP unpopular -- NASA advocates backlash.

Leahy 2006 (Bart, National Space Society “Space Access: The Private Investment vs. Public Funding Debate” <http://www.space.com/2401-space-access-private-investment-public-funding-debate.html>)

It should be noted, however, that advocates continue to lobby Congress to support the Vision, partially out of loyalty, partially from an understanding that NASA can still do things that smaller operators like Scaled Composites or SpaceX cannot do--yet.

## Prizes Unpopular

### Prizes Unpopular in Congress

Jobes 2004 (Douglas O president of The Space Settlement Institute. “Will government-sponsored space prizes fly? November 15th http://www.thespacereview.com/article/270/1)

Unlike the privately funded X Prize, the Space and Aeronautics Prize relies primarily on taxpayer dollars for funding. Even NASA’s Centennial Challenges prize program, while technically “government-sponsored,” derives its funding from the existing NASA budget. Some types of prizes, like the [Space Settlement Initiative](http://www.spacesettlement.org/) proposed by Alan Wasser, would cost the taxpayer nothing because incentives readily available in space (such as land claim recognition on the Moon) act as the financial lure for private space development efforts. Since a government-sponsored cash prize must tap the public coffer one way or another, though, monetary prizes are a much more difficult sell in Congress. Efforts to pass government-sponsored monetary incentives for private space development have an abysmal track record in Congress. During the 1990’s, for example, a series of bills were introduced by Congressman Bob Walker (then chairman of the House Science Committee) designed to provide very substantial tax breaks for private sector “space corporations” as well as for investors who purchased stock in such companies.

### 100 million prize unpopular- track record proves

Jobes 2004 (Douglas O president of The Space Settlement Institute. “Will government-sponsored space prizes fly? November 15th http://www.thespacereview.com/article/270/1)

The first, the “Space Transportation Services Purchase Act” of 1993 (also known as the Omnibus Space Commercialization Act), included a substantial section providing significant tax deductions for space businesses and investors. This bill died at the end of the 103rd Congress in December 1994 due to inaction by the House. The tax incentives section of that bill was reintroduced by Walker in June 1995 as the “Space Business Incentives Act”. This version of the legislation died in the House Ways and Means Committee at the end of the 104th Congress. Then, in 1996, a subsequent bill by Walker, the “Space Commercialization Promotion Act,” achieved approval by the House, but then died after being sent to the Senate for consideration. Compared to the 1990’s, the financial picture today is much grimmer. Now the country is at war and we have a record budget deficit and mounting national debt. How will most Congressmen and Senators feel about setting aside $100 million for a space prize when there does not seem to be enough money to simply balance the budget?

### CP unpopular in Congress.

Zimmerman, 2004 [Robert, Space Daily, “Congress Impedes NASA Prizes”, <http://www.spacedaily.com/news/nasa-04zt.html>,]

Here, too, Congress has made no effort to grease the wheels and make it easier for NASA to encourage private human space travel. NASA officials have spent innumerable hours over the last few months lobbying Congress for some increased authority and have gotten nothing. In fact, the only bills pending in Congress specifically limit NASA from awarding any prize larger than $1 million. Yet Sponberg still thinks the program can get off the ground. The hope is that when the 109th Congress comes into session next year we'll see progress on this front, he said. Unfortunately, Congress seems to be taking a completely opposite tack. The Commercial Space Launch Amendments Act of 2004 - which passed the House last week and is expected to pass the Senate when it reconvenes next week - actually tightens safety restrictions on any future private competitions like the X Prize.

### NASA prizes unpopular in Congress

Newell and Wilson 2005 - Gendell Associate Professor of Energy and Environmental Economics at the Nicholas School and advisor to President Obama (June 2005, Richard G. and Nathan E., “Technology Prizes for Climate Change Mitigation”, http://www.rff.org/Documents/RFF-DP-05-33.pdf)

4.2. The Institutional Setting When set up and run by the private sector, the magnitude and technological focus of the prize are delimited mainly by the resources and particular interests of the parties involved. For example, a group of uranium mining firms might have an incentive to establish a technological prize aimed at speeding the commercial development of Generation IV Nuclear Energy Systems. By contrast, an environmental organization concerned about both nuclear waste and GHG emissions might prefer to incentivize research into energy efficiency or renewable technologies A public sector technology prize faces different problems because of political economy concerns. These stem from the fact that the government already engages in considerable amounts of R&D support. In some ways, prizes could have advantages over contracts and grants in this regard. For example, the use of a prize could lessen the influence of politics on research funding. Cohen and Noll (1991) describe many instances in which political economy considerations have led to inefficient research spending. In some cases, the wrong programs—from a greater societal perspective—receive support. In others, although the initial investment might have been appropriate, subsequent events indicated that success would not be forthcoming, but bureaucratic inertia and lobbying ensured that the funding was not discontinued. Using prizes could substantially reduce the likelihood of both of these situations, especially the latter. However, prizes might also have important political economy disadvantages. One particularly important disadvantage is that they will require support by at least some of the institutions associated with preexisting research support programs. Because these institutions could perceive the prizes as an implicit threat, they might react by working to reduce (or at least not improve) their effectiveness. There are several different parts of the government that might be against new technology programs, but one could have a particularly significant impact: the U.S. Congress. Congress has considerable latitude in designating specific areas of research for funding. In practice, the use of earmarked funds allows it to wield considerable power over how and to whom grants and subsidies are dispersed, allowing elected officials to use research funds as a form of “pork” to be distributed to supporters or constituents (Kremer 2000; Abramowicz 2003; Banks, Cohen, and Noll 1991). Not surprisingly, the allocation of funds in this manner may fall significantly short of what is optimal. For example, lobbying by interested parties caused the Synfuels program to focus on Appalachian coal, although Western coal was better suited to Synfuels’s purposes. By making the receipt of funds independent of any governmental oversight, technology prizes could considerably disrupt this arrangement, removing politicians’ capacity to target rewards to specific recipients. To repress this possible transfer of power, Congress could choose to weaken the design of prizes in several ways. First, the relevant appropriations committees could specify that funding must be earmarked for non-prize-related activities. Second, Congress could place limits on the magnitude of the prize award being offered. This could sharply reduce the attractiveness of participation, cutting into its effectiveness. Third, Congress could attempt to target the prize to specific contestants by playing an active role in specifying the technological goal. These types of political economy complications may have bedeviled the establishment of the NASA Centennial Challenges. As stated in Section 3.2, the current prize money totals $400,000, which will be given out over two years in eight different competitions. The Centennial Challenges were not always intended to be this modest in scope. As of December 2004, there was still considerable talk about having the Centennial Challenges offer up to $50 million for major achievements, possibly including private human space travel. However, in order to give individual prizes larger than $250,000, NASA requires congressional action (Zimmerman 2004). Similarly, there are large bureaucratic hurdles to overcome in order for NASA to encourage private space travel. Despite having made public statements supporting the pursuit of space prizes, Congress has not moved to increase NASA’s authority to disperse funds or to facilitate private space travel. Indeed, the only relevant bills being considered as of December 2004 would have specifically limited NASA from ever being able to give a prize larger than $1 million and would have tightened the safety restrictions on any future space flight competitions such as the X-Prize (Zimmerman 2004). It is not difficult to foresee similar problems arising in the case of climate change mitigation technology research. A fuller treatment on the political economy of prizes would be a welcome addition to the discussion of how and where technology inducement prizes could be usefully implemented.

### Prizes unpopular

Jobes 2004 (Douglas O president of The Space Settlement Institute. “Will government-sponsored space prizes fly? November 15th http://www.thespacereview.com/article/270/1)

In Recommendation 5-2 of their June 2004 report, the Aldridge Commission implored Congress to authorize the funding of large cash prizes for private achievements in space: to establish “significant monetary prizes for the accomplishment of space missions and/or technology developments.” Whether such government-sponsored contests come to pass, however, is more a matter for you and I, as constituents, to decide. Without grassroots commitment to the concept of government-sponsored space prizes, the Space and Aeronautics Prize Act (and future proposals like it) will die in committee just like the tax incentive bills of the 1990’s.

## Tax Incentives Unpopular

### Tax incentives unpopular- track record proves

Jobes 2004 (Douglas O president of The Space Settlement Institute. “Will government-sponsored space prizes fly? November 15th http://www.thespacereview.com/article/270/1)

The first, the “Space Transportation Services Purchase Act” of 1993 (also known as the Omnibus Space Commercialization Act), included a substantial section providing significant tax deductions for space businesses and investors. This bill died at the end of the 103rd Congress in December 1994 due to inaction by the House. The tax incentives section of that bill was reintroduced by Walker in June 1995 as the “Space Business Incentives Act”. This version of the legislation died in the House Ways and Means Committee at the end of the 104th Congress. Then, in 1996, a subsequent bill by Walker, the “Space Commercialization Promotion Act,” achieved approval by the House, but then died after being sent to the Senate for consideration. Compared to the 1990’s, the financial picture today is much grimmer. Now the country is at war and we have a record budget deficit and mounting national debt. How will most Congressmen and Senators feel about setting aside $100 million for a space prize when there does not seem to be enough money to simply balance the budget?

### CP links to politics.

The Space Review, 2005 [an online publication whose focus is on publishing in-depth articles, essays, editorials, and reviews on a wide range of space-related topics, 10-5, “Tax policy and space commercialization”, <http://www.thespacereview.com/article/300/1>]

Over the last several years a few members of Congress have been pushing bills that would provide tax credits or other relief to promote investment in space companies. Rep. Dana Rohrabacher (R-CA), who until this year had been chairman of the space subcommittee of the House Science Committee, has been promoting his “Zero Gravity, Zero Tax” bill (HR 914 in the previous Congress) that would exclude from taxation income derived from products or services produced in space. It would also provide credits for those investing in “qualified” space companies. At the same time, Ken Calvert (R-CA), Rohrabacher’s likely successor as chair of the space subcommittee, promoted his own legislation (HR 2358 in the last Congress) that would provide similar credits for investing specifically in space transportation companies. The idea behind tax credit proposals is to encourage private funding of space startups by giving investors an immediate reward for putting up their money, regardless if the startup eventually succeeds or fails. Despite the efforts of the so-called “alt.space” community, both bills were referred to the Ways and Means committee, where they died. However, it’s quite possible that either or both will be reintroduced in some form this year. Calvert in particular will now have a pulpit from which to promote his proposal, although Rohrabacher showed that this is not necessarily effective.

# ==== Coercion Netbenefit ====

## Coercion – 1NC

### (B) Impact

### 1. Any coercion brings us one step closer to the genocidal nightmares of Nazi Germany and the Soviet Union

**Browne**, former Libertarian presidential candidate, 1995

(Harry, executive director of public policy at American Liberty Foundation, editor of Liberty Magazine, financial advisor and economist, *Why Government Doesn’t Work*, pg 66-67)

The reformers of the Cambodian revolution claimed to be building a better world. They forced people into reeducation programs to make them better citizens. Then they used force to regulate every aspect of commercial life. Then they forced office workers and intellectuals to give up their jobs and harvest rice, to round out their education. When people resisted having their lives turned upside down, the reformers had to use more and more force. By the time they were done, they had killed a third of the country’s population, destroyed the lives of almost everyone still alive, and devastated a nation. It all began with using force for the best of intentions—to create a better world. The Soviet leaders used coercion to provide economic security and to build a “New Man”—a human being who would put his fellow man ahead of himself. At least 10 million people died to help build the New Man and the Workers’ Paradise. But human nature never changed—and the workers’ lives were always Hell, not Paradise. In the 1930s many Germans gladly traded civil liberties for the economic revival and national pride Adolf Hitler promised them. But like every other grand dream to improve society by force, it ended in a nightmare of devastation and death. Professor R.J. Rummel has calculated that 119 million people have been killed by their own governments in this century. Were these people criminals? No, they were people who simply didn’t fit into the New Order—people who preferred their own dreams to those of the reformers. **Every time you allow government to use force to make society better, you move another step closer to the nightmares of Cambodia, the Soviet Union, and Nazi Germany**. We’ve already moved so far that our own government can perform with impunity the outrages described in the preceding chapters. These examples aren’t cases of government gone wrong; they are examples of government—period. They are what governments do—just as chasing cats is what dogs do. They are the natural consequence of letting government use force to bring about a drug-free nation, to tax someone else to better your life, to guarantee your economic security, to assure that no one can mistreat you or hurt your feelings, and to cover up the damage of all the failed government programs that came before.

### 2. Moral side constraint

**Petro**, Wake Forest Professor in Toledo Law Review, 1974

(Sylvester, Spring, page 480)

However, one may still insist, echoing Ernest Hemingway - "I believe in only one thing: liberty." And it is always well to bear in mind David Hume's observation: "**It is seldom that liberty of any kind is lost all at once**." Thus, **it is unacceptable to say that the invasion of one aspect of freedom is of no import because there have been invasions of so many other aspects. That road leads to chaos, tyranny, despotism, and the end of all human aspiration**. Ask Solzhenitsyn. Ask Milovan Dijas. In sum, if one believed in freedom as a supreme value and the proper ordering principle for any society aiming to maximize spiritual and material welfare, then **every invasion of freedom must be emphatically identified and resisted with undying spirit**.

## Generic – 1NC

### (A) Link:

### Every dollar for government space policy is coercive

**HEALY ‘11** (Gene, is a vice president at the Cato Institute, July 11, “Space program was our biggest bridge to nowhere”, http://washingtonexaminer.com/opinion/columnists/2011/07/space-program-was-our-biggest-bridge-nowhere, MinR)

Outside of avoiding the hypothetical horror of Martian gulags, what does the ordinary taxpayer get from the space program? Not much, says Robin Hanson, a George Mason University economist and research associate at Oxford's Future of Humanity Institute: The benefits are "mostly like the pyramids -- national prestige and being part of history." Space partisans often point to the alleged technological breakthroughs that come from solving hard problems like keeping humans alive in an environment never meant to sustain them. But, as Hanson points out, you could get similar technological boons from any ambitious project you convince the feds to spray money at -- whether it's robot butlers or floating cities. If we wanted to, we could surely "find other projects with larger direct payoffs." The argument for federally funded spaceflight ultimately boils down to "spacecraft as soulcraft," the quasi-religious notion that, as Post columnist Charles Krauthammer puts it, we go "not for practicality," but "for the wonder and the glory of it." Space must be an alluring muse indeed, given that it makes Krauthammer, normally a hardheaded neoconservative, sound like a yoga instructor gone lightheaded during a juice fast. He calls space skeptics "Earth Firsters," deaf to "the music of the spheres." Apparently there's nothing more "isolationist" than wanting to stay on your own planet. Krauthammer's obsession makes sense, in a way, since federally funded spaceflight is the **quintessential neoconservative project: a** **giant, wasteful crusade designed to fill Americans' supposedly empty lives with meaning**. Sorry, Charlie: The public's not buying it. A 2010 Rasmussen poll showed that more Americans think private enterprise should pay for space exploration than think government should fund it. By nearly 2-to-1 margins, they also oppose sending federally funded astronauts to the moon or Mars. As far as Americans are concerned, space is the **ultimate "bridge to nowhere."** It's true that, with a $1.5 trillion deficit, NASA's $18 billion isn't what stands between us and our fiscal day of reckoning. **But every little bit counts**, and this is the rare cut that won't make the public squeal. Moreover, **there's a matter of principle at stake here**. **The threat of force lies behind every tax dollar the government collects**. You might demand that your neighbor help defend us against a foreign invader -- but would really you hold a gun to his head to help him appreciate "the music of the spheres"?

## Generic – 2NC

### The aff is coercive. Market solves: innovation

**MURPHY ‘5** (Robert, is an adjunct scholar of the Mises Institute, He teaches economics at Hillsdale College, January, “A Free Market in Space”, http://mises.org/freemarket\_detail.aspx?control=525, MinR)

On October 4, 2004, the privately funded SpaceShip-One climbed to an altitude of over 70 miles, clinching the $10 million "X Prize." Many analysts were excited by the prospects for commercial space travel, and the day when orbital or even interplanetary flights would be affordable for the average person. As if to rebut the naysayers who dismissed SpaceShipOne as a mere tourist attraction for millionaires, Las Vegas hotel magnate Robert Bigelow capitalized on the event by announcing a $50 million prize for the first team to put a privately funded space station into orbit. Beyond the obvious implications for sci-fi buffs and other space enthusiasts, the episode sheds light on the versatility of free enterprise. Most obvious, we see that the government is not necessary for space exploration; engineers and pilots do not suddenly become smarter when they are hired by NASA. Indeed, because a free market in space industries would be open to all competitors, we have every reason to expect technological innovation to be much quicker than in a monopolized space program. In a free market, the maverick pioneer just needs to convince one or a few capitalists (out of thousands) to finance his revolutionary project, and then the results will speak for themselves. In contrast, an innovative civil servant at NASA needs to convince his direct superiors before trying anything new. If his bosses happen to dislike the idea, that’s the end of it. Prior to the exploits of SpaceShipOne, the standard justification for government involvement in space was that such undertakings were "too expensive" for the private sector. But what does this really mean? The Apollo moon program certainly didn’t create labor and other resources out of thin air. On the contrary, the scientists, unskilled workers, steel, fuel, computers, etc. that went into NASA in the 1960s **were all diverted from other industries** and potential uses. The government spent billions of dollars putting Neil Armstrong on the moon, and consequently the **American taxpayers had billions fewer dollars to spend** on other goods and services. This is just another example of what Frédéric Bastiat described in his famous essay, "That Which Is Seen, and That Which Is Not Seen." Whenever the government creates some public work, everyone can see the obvious benefits. For example, everyone can appreciate the fact that we put a US flag on the moon, and listened as Neil Armstrong apparently flubbed his memorized line. Or to use a more mundane example, everyone can see a beautiful new sports stadium financed (in part) by tax dollars. What people can’t see are the thousands of other goods and services that now won’t be enjoyed, because the scarce resources necessary for their production were devoted to the government project. Politicians may break moral laws, but they can’t evade economic ones: If they send a man to the moon (or build a new stadium), consumers necessarily must curtail their enjoyments of other goods. Thus the question becomes: Was the Apollo program (or new stadium) sufficiently valued by consumers to outweigh its opportunity cost (i.e., the value consumers place on the goods that now cannot be produced)? At first glance, this seems to be a difficult question to answer. After all, how can we possibly compare the benefits of the Apollo program with, say, the benefits of the additional shoes, diapers, automobiles, research on cancer, etc. that could have been alternatively produced? The short answer is, we can’t. This is just a specific example of the more general principle elaborated by Ludwig von Mises: the impossibility of economic calculation under socialism. Even if a central planning board were truly benevolent, and even if it had access to all of the technical conditions (such as resource supplies and technological recipes) of the economy, the planners would be at a loss to deploy the scarce resources in an efficient way. There would be no way to determine whether the chosen output goals were good ones, or whether an alternative plan could have provided the subjects with a better outcome. The above analysis might puzzle the reader. Yes, it is certainly difficult in practice to tell whether the Apollo program (or any other government project) is worth its cost, but isn’t that true of any undertaking? Why should this be a unique drawback for government endeavors? The crucial difference is that private projects are subject to the profit and loss test. The owner of a private firm must pay market prices for all of his or her scarce resources. If the consumers do not then voluntarily spend enough money on the final product or service to recoup these expenditures, this is the market’s signal that the resources are more urgently needed in other lines (according to the consumers). It can never be the case that all entrepreneurs find a particular resource "too expensive" to use; if no entrepreneurs were buying it, then the price of this resource would fall until some did. For example, it would be unprofitable—"wasteful"—to use gold in the construction of bridges; the extra money motorists would pay to drive across a golden bridge would not cover the additional expense. Yet it is profitable to use gold in the construction of necklaces or rings. Consumers are willing to pay enough for golden necklaces (versus silver or copper ones) that it makes it worthwhile for jewelers to buy gold for this purpose. Hence, the high price of gold is (among other things) a signal to engineers not to use gold in building bridges, because consumers would rather the scarce metal be used in jewelry. The principle is the same when it comes to space travel. The reason private entrepreneurs would never have financed the moon program in the 1960s is that the financial returns from such a project wouldn’t come close to covering the expenses. Yet this is just the market’s way to tell these entrepreneurs that the computers, scientists’ labor, fuel, etc. would be better devoted to other ends. By seizing tax dollars and financing the Apollo program, President Kennedy et al. simply **forced Americans to forgo the thousands of products** that, according to their own spending decisions, they would have preferred to the space adventures. Is this perspective crude materialism? Surely, there are all sorts of things that are not profitable in the narrow sense, and yet are of tremendous importance to humanity. Consequently, are we not in need of noble politicians acting in the public interest? Well, consider the $10 million dollar X Prize. This was a gift designed to promote space exploration. The same is true of Bigelow’s $50 million prize. The private sector’s promotion of abstract knowledge (as opposed to practical, marketable discoveries) is nowhere better demonstrated than in the Clay Mathematics Institute’s million dollar awards for the solution to any of seven important problems. Historically, there were many rich patrons of the arts and science; didn’t the Vatican pay Michelangelo not only to create beautiful art but also to increase donations? Indeed, it is a common misconception that in the free market, "the highest bidder" determines things. No, in a free market, the owner determines the use of a piece of property. When a man lets his teenage son take the car for the night, is he renting it to the highest bidder? Of course not. A system of property rights, and the freely floating prices that accompany the exchange of these rights, is necessary to ensure the best possible use of resources. This is true in something as mundane as car production, or something as exotic as trips to Mars. The private sector can finance safe and efficient space exploration, but it will only do so in projects where the benefits (including donations from enthusiasts) truly outweigh the costs. The success of SpaceShipOne illustrates these facts. Now that the public has seen the potential of private space flight, perhaps it will become politically possible to axe NASA and return its budget to the private sector. .FM

# ==== Innovation DA ====

## Innovation DA – 1NC

### Private innovation now

**SUMMERS AND RANDAZZO ‘11** (Adam, M.A. in Economics from George Mason University and Bachelor of Arts degrees in Economics and Political Science from the University of California, Los Angeles, has written extensively on privatization, government reform, law and economics, and various other political and economic topics, policy analyst at Reason Foundation, AND\*\* Anthony Randazzo, director of economic research for Reason Foundation, a nonprofit think tank advancing free minds and free markets. He specializes in housing finance, financial services regulation, and macroeconomic policy. He also does substantive work on privatization, tax policy, monetary policy, and trade research, February, “Annual Privatization Report 2010: Federal Government Privatization”, http://reason.org/files/federal\_annual\_privatization\_report\_2010.pdf, MinR).

Whether transporting people and cargo to the space station, offering private individuals the chance to experience suborbital space flight, or providing millions of visitors a better experience and opportunity to learn about the nation’s space history and exploration, the private sector’s role in space research and travel, once considered untenable, has become ubiquitous. As this trend continues and the private space industry expands, we can expect more services and opportunities for consumers and greater efficiency for the nation’s space program, allowing the government to focus on its more core functions.

### Plan trades off with private investment, destroying the economy and causing extinction

**COLLINS AND AUTINO ’9** (Patrick Collins, Expert in the economics of energy supply from space, professor of economics at Azabu University in Japan, and a Collaborating Researcher with the Institute for Space & Astronautical Science, as well as adviser to a number of companies, AND\*\* Adriano Autino, prolific science and space writer/lecturer for leading magazines, journals, and space advocate organizations, as well as Italian entrepreneur, “What the Growth of a Space Tourism Industry Could Contribute to Employment, Economic Growth, Environmental Protection, Education, Culture and World Peace”, 11 June 2009, <http://www.spacefuture.com/archive/what_the_growth_of_a_space_tourism_industry_could_contribute_to_employment_economic_growth_environmental_protection_education_culture_and_world_peace.shtml>, MinR)

The continuation of **human civilisation** requires a growing world economy, with access to increasing resources. This is because competing groups in society can all improve their situation and reasonable fairness can be achieved, enabling social ethics to survive, only if the overall "economic pie" is growing. Unfortunately, societies are much less robust if the "pie" is shrinking, when ethical growth becomes nearly impossible, as competing groups try to improve their own situation at the expense of other groups. Continued growth of civilisation requires continual ethical evolution, but this will probably be possible only if resources are sufficient to assure health, comfort, education and fair employment for all members of society. The world economy **is under great stress** recently for a number of reasons, a fundamental one being the lack of opportunities for profitable investment—as exemplified by Japan's unprecedented decade of zero interest-rates. This lack of productive investment opportunities has led a large amount of funds in the rich countries to "churn" around in the world economy in such forms as risky "hedge funds", causing ever greater financial instability, thereby further weakening economic growth, and widening the gap between rich and poor. Increasing the opportunities for profitable, stable investment requires continual creation of new industries [16]. Governments today typically express expectations for employment growth in such fields as information technology, energy, robotics, medical services, tourism and leisure. However, there are also sceptical voices pointing out that many of these activities too are already being outsourced to low-cost countries which are catching up technologically in many fields [20]. Most of the new jobs created in the USA during the 21st century so far have been low-paid service work, while the number of US manufacturing jobs has shrunk rapidly [21]. It is thus highly relevant that aerospace engineering is a field in which the most technically advanced countries still have a substantial competitive advantage over later developing countries. Hence, if a commercial space travel industry had already been booming in the 1980s, the shrinkage in aerospace employment after the end of the "cold war" would have been far less. Consequently it seems fair to conclude that the decades long delay in developing space travel has contributed to the lack of new industries in the richer countries, **which is constraining economic growth** and causing the highest levels of unemployment for decades. The rapid economic development of China and India offers great promise but creates a serious challenge for the already rich countries, which need to accelerate the growth of new industries if they are to benefit from these countries' lower costs without creating an impoverished under-class in their own societies. The long-term cost of such a socially divisive policy would greatly outweigh the short-term benefits of low-cost imports. The development of India and China also creates dangers because the demands of 6 billion people are now approaching the limits of the resources of planet Earth. As these limits are approached, governments become increasingly repressive, thereby adding major social costs to the direct costs of environmental damage [22]. Consequently, as discussed further below, it seems that the decades-long delay in starting to use the resources of the solar system has already caused heavy, self inﬂicted damage to humans' economic development, and must be urgently overcome, for which a range of policies have been proposed in [23,24]. 3.1. Popular demand is the basis of economic growth The continuing heavy dependence of the space industry on taxpayer funding, despite cumulative investment of some 1 trillion Euro-equivalents, is due to the simple fact that those directing the industry have chosen not to supply services which large numbers of the general public wish to buy. Yet it is elementary that only by doing this can the space industry grow into a normal commercial activity. Doing so will create an industry which raises private investment to develop new, better and larger facilities in order to sell better services to ever-more customers—in the familiar "virtuous circle" of business growth. Eventually this activity may even reach a scale sufficient for the tax revenues it generates to repay the public investment to date. In successful companies, investment is skillfully judged so as to produce goods and services for which there will be large commercial (i.e. non-governmental) demand. If this earns sufficient profits, then the activity will continue to grow spontaneously for decades or more, like manufacturing of cars or airliners. If, instead, **funds intended for investment are spent on developing non-commercial products**, such as expensive surveillance satellites or a space station for which the only significant customer is government, then clearly the space industry is **doomed to remain forever a small, taxpayer-funded activity—a hindrance** rather than a help **to economic growth**. Economic policy-makers responsible for deciding the public budget for space development must no longer rely exclusively on the advice of the space industry itself, which ever since its origin has had different objectives than the economic benefit of the general public. That is, economic policy-makers, who are responsible for tens of trillions of Euros of activity, must take the initiative to ensure that passenger space travel services are developed as soon as possible. There are many ways in which private investments in this field can be facilitated and supported, **without governments themselves either planning or managing the projects**. Among other steps, this will require the important institutional innovation of collaboration between civil aviation and civil space activities. Since, even with today's knowledge, researchers foresee the **possibility of economic development in space growing** to a scale similar to terrestrial industry [11]. This field of industry must be considered as having the potential **to become a major new axis for economic growth**—equivalent in importance to the aviation industry, but with minimal environmental impact, as discussed below—and therefore deserving of the most serious and urgent attention by economic policymakers.

### Economic decline causes nuclear & bio-war

**National Review ‘8**

[National Review Online, October 28, 2008 Kerpen, policy director for Americans for Prosperity From Panic to Depression?, [http://article.nationalreview.com/?q=OWQ3ZGYzZTQyZGY4ZWFiZWUxNmYwZTJiNWVkMTIxMmU=](http://article.nationalreview.com/?q=OWQ3ZGYzZTQyZGY4ZWFiZWUxNmYwZTJiNWVkMTIxMmU=" \t "_blank)]

It’s important that we avoid all these policy errors — not just for the sake of our prosperity, but for our survival. The Great Depression, after all, didn’t end until the advent of World War II, the most destructive war in the history of the planet. In a world of nuclear and biological weapons and non-state terrorist organizations that breed on poverty and despair, another global economic breakdown of such extended duration would risk armed conflicts on an even greater scale.

## Uniqueness – 2NC

### Private sector innovating now

**SUMMERS AND RANDAZZO ‘11** (Adam, M.A. in Economics from George Mason University and Bachelor of Arts degrees in Economics and Political Science from the University of California, Los Angeles, has written extensively on privatization, government reform, law and economics, and various other political and economic topics, policy analyst at Reason Foundation, AND\*\* Anthony Randazzo, director of economic research for Reason Foundation, a nonprofit think tank advancing free minds and free markets. He specializes in housing finance, financial services regulation, and macroeconomic policy. He also does substantive work on privatization, tax policy, monetary policy, and trade research, February, “Annual Privatization Report 2010: Federal Government Privatization”, http://reason.org/files/federal\_annual\_privatization\_report\_2010.pdf, MinR).

With the aging space shuttle fleet being retired and the National Aeronautic and Space Administration (NASA) facing tight budgets, the Obama administration announced in 2009 that it was cancelling President George W. Bush’s planned mission to return to the moon, and that the government would be turning to the private sector for the transportation of astronauts and cargo to and from the International Space Station. The plan also extends the space station’s life by five years. A. Private Transport of Astronauts and Cargo Congress approved legislation ratifying Obama’s strategy to use private carriers to deliver people and cargo to near-Earth space in September 2010. The move “**unleashes the level of innovation in American industry**, instead of keeping it all within the very tight and bureaucratic structure of a government program,” according to New Mexico Spaceport Authority Director Rick Homans in an October 2010 Las Cruces Sun-News article. PayPal and Tesla co-founder Elon Musk’s Space Exploration Technologies Corp., known as SpaceX, developed its Falcon 9 rocket to handle these space transportation needs, and hopes to begin shuttling astronauts by the end of 2013. The company estimates that it will charge NASA about $20 million per astronaut for the voyage, a bargain compared to the $300 million per astronaut it would cost NASA, or even the $56 million a head on Russia’s Soyuz rockets in the near term after the shuttle fleet is retired. SpaceX completed a successful test launch of the Falcon 9 from the Kennedy Space Center in Cape Canaveral, Florida in June 2010. Another successful test flight in December 2010 earned the Falcon 9 the distinction of being the first privately owned ship ever to return safely from Earth orbit. Speaking of the differences between traditional government funding of the space program and the newer public-private financing model, SpaceX President Gwynne Shotwell told ABC News in December 2010, “If we overrun this program, we have to come up with the money through investment to cover the cost, which is dramatically different from contracts where if the contractor overruns, taxpayers have to pay the overruns.” SpaceX is not the only private company seeking to provide space transportation services. Other firms competing for government space contracts include Orbital Sciences, Virgin Galactic, Alliant Techsystems Inc., EADS Astrium, XCOR Aerospace, Rocketplane Limited, Space Adventures, Blue Origin, Masten Space Systems, Armadillo Aerospace, Sierra Nevada Corp., and United Launch Alliance, a joint venture between Boeing and Lockheed Martin.

### It’s zero-sum uniqueness: decreasing government involvement increases innovation

**MURRAY ‘10** (Iain, heads the Center for Economic Freedom at the Competitive Enterprise Institute, AND\*\* Rand Simberg has over three decades of experience in space technology and policy, November 10, “Big Government's Final Frontier”, http://spectator.org/archives/2010/11/10/big-governments-final-frontier, MinR)

The canceled Constellation program, former NASA administrator Mike Griffin's flawed implementation of Bush's Vision for Space Exploration, focused on the moon, and was an unaffordable redo of Apollo, with no capability or plans to go to Mars, and poor prospects for returning to the moon for that matter. What Mr. Thompson derides as a "science fair" is the development of new technologies that will enable affordable visits not just to the moon, but to asteroids, the moons of Mars, the Martian surface, and points beyond -- at much lower cost. On its cost and schedule trajectory, Constellation would have created a gap of at least seven years -- until 2017 at the earliest -- during which we would have had to continue to purchase Soyuz launches and capsules from Russia, to use for crew changeouts and as lifeboats for the International Space Station. This is particularly ironic, because under the Bush plans, the ISS itself would be abandoned two years earlier, in 2015! On the other hand, with the new plans, U.S. involvement with the ISS will continue until at least 2020 (and probably beyond). New commercial capabilities to deliver astronauts both to the station and to low-Earth orbit for exploration beyond would become available no later than 2015 (and probably earlier), at a small fraction of the cost of the planned Constellation rocket: the Ares I launcher and Orion crew capsule. The new NASA plan would make those capabilities available not just to a few NASA civil servants, but to all comers, including private space researchers and sovereign clients (foreign governments) that have signed memoranda of understanding with Bigelow Aerospace to lease its planned orbital facilities, independent of the ISS. The U.S. will thereby become a seller of human space transportation services, instead of a supplicant to and purchaser of them from Russia. Call us crazy, but **the former plan looks a lot more like the "end of U.S. human spaceflight"** than does the latter. When Thompson writes that "those U.S. 'entrepreneurs' needed billions of dollars from the federal government to develop rockets based on old technology before they could take over from the Russians," we can only shake our heads sadly. First, there is no reason for the scare quotes around "entrepreneurs." Space Exploration Technologies has invested hundreds of millions of its own money to develop its Falcon launcher and Dragon capsule, scheduled to fly next month, for a tiny fraction of the projected cost of Ares/Orion. SpaceX has a huge backlog of orders. In fact, to meet its ISS obligations as soon and cost effectively as possible, NASA needs SpaceX and other commercial crew providers more than SpaceX needs NASA. Thompson also suggests that NASA's scrapped plans did not involve "old technology," when in fact the program was premised on reusing Shuttle components -- and thus maintaining their associated jobs, which is why the Shuttle program has remained so expensive and was so popular with politicians. Finally, when Thompson complains about the long development time for the planned heavy lifter, he implies that such a vehicle is necessary for human exploration beyond Earth orbit. That misconception has been a major stumbling block for such missions ever since humans last walked on the Moon almost 40 years ago. In fact, the United Launch Alliance, a joint venture of Boeing and Lockheed-Martin, has developed and described viable mission scenarios in which lunar missions can be accomplished with existing launch systems. All that is needed is a little innovation, and to break out of the mindset of the Apollo Cargo Cult, in which anything that doesn't resemble Apollo -- a specific destination, a date, and a really big rocket -- isn't a real human exploration program. It is time for conservatives to recognize that **Apollo is over**. We must recognize that Apollo was a centrally planned monopolistic government program for a few government employees, in the service of Cold War propaganda and was therefore itself an affront to American values. If we want to seriously explore, and potentially exploit space, we need to harness private enterprise, and push the technologies really needed to do so.

## Link – 2NC

### The link turns case: Government action trades off with private innovation.

**BOAZ ‘8** (David, Executive vice president of the Cato Institute , September 15, “Space Privatization–from Cato to the BBC”, http://www.cato-at-liberty.org/space-privatization-from-cato-to-the-bbc/, MinR)

He concludes that fostering good relations with other countries is insufficient justification for the expenditures, and that NASA should move aside and allow the private sector to play a role in manned space flight. The cost of these activities must lessen if they are to continue, and that **will only happen with a decrease or removal of government involvement**. Rees observes that only NASA deals with science, planetary exploration, and astronauts, while the private sector is allowed to exploit space commercially for things such as telecommunications. However, **there is no shortage of interest in space entrepreneurship**: wealthy people with a track record of commercial achievement are yearning to get involved. Rees sees space probes plastered with commercial logos in the future, just as Formula One racers are now. Those ideas may sound radical, but not if you’ve been following the work of the Cato Institute. As long ago as 1986, Alan Pell Crawford wrote hopefully that “space commercialization … is a reality,” and looked forward to the country making progress toward a free market in space. The elimination of NASA was a recommendation in the Cato Handbook for Congress in 1999. Edward L. Hudgins, former editor of Regulation magazine, wrote a great deal about private options in space. In 1995, he testified before the House Committee on Appropriations that the government should move out of non-defense related space activities, noting the high costs and wastefulness incurred by NASA. In 2001, Hudgins wrote “A Plea for Private Cosmonauts,” in which he urged the United States to follow the Russians (!) in rediscovering the benefits of free markets after NASA refused to honor Dennis Tito’s request for a trip to the ISS. Hudgins testified again before the House in 2001, this time before the Subcommittee on Space and Aeronautics. He noted that since the beginning of the Space Age, NASA has actively discouraged and barred many private space endeavors. This effectively **works against the advancement and expansion of technology**, while pushing out talent to foreign countries who court American scientists and researches to launch from their less-regulated facilities. In “Move Aside NASA,” Hudgins reported that neither the station nor the shuttle does much important science. This makes the price tag of $100 billion for the ISS, far above its original projected cost, unjustifiable. Michael Gough in 1997 argued that the space “shuttle is a bust scientifically and commercially” and that **both successful and unsuccessful NASA programs have crowded out private explorers**, eliminating the possibility of lessening those problems. Molly K. Macauley of Resources for the Future argued in the Summer 2003 issue of Regulation that legislators and regulators had failed to take into account “**the ills of price regulation, government competition, or command-and-control management”** in making laws for space exploration.

### Bureaucracy trades off with private innovation

**HUDGINS ‘3** (Edward L., is director of the Washington, D.C., office of the Objectivist Center and an adjunct scholar of the Cato Institute, “Space: The Free-Market Frontier (Paperback)”, http://www.cato.org/store/books/space-free-market-frontier-paperback, MinR)

For years, private enterprise has been poised to explore outer space and deliver benefits to people on earth -- from perfecting new life-saving medicines to creating new food crops and operating floating factories for high tech innovations. But **NASA's bureaucracy has been floundering, erecting legal and regulatory barriers to entrepreneurs wishing to take advantage of operating in space**. On July 20, 1969, Neil Armstrong and Buzz Aldrin became the first men to walk on the moon. At that time, most Americans found it difficult to imagine that the vision presented in the movie 2001: A Space Odyssey would not be in our future. Many thought that by 2001 there would be regularly scheduled commercial flights to orbiting hotels, but no such flights have materialized. In fact, fewer than 500 human beings have ever ventured into space. And the International Space Station is billions of dollars over budget and radically scaled back from its initial design. What has happened in the past three decades to delay mankind's full exploitation of space? **The cause of the problems is found in public policy**. Civilian space efforts have been dominated by NASA, a **bureaucratic agency that has retarded activities** in space as much as it has facilitated them. Yet, at the same time that NASA has been lost in space, entrepreneurs on earth have given birth to the computer and to telecom and Internet revolutions. Private markets are the answer.

### NASA trades off with private investment, causing inefficiency

**SANDEFUR ‘00** (Timothy, Principal Attorney at the Pacific Legal Foundation, graduated as law student at Chapman University in Orange, California, May, “The Starship Private Enterprise”, http://www.thefreemanonline.org/featured/the-starship-private-enterprise/, MinR)

This subject is more serious than it may seem at first. The privatization of America’s space program is a hot topic today, especially since NASA’s two recent Martian blunders. At a cost of some $14 billion a year, NASA has become a vast bureaucratic machine that has so far almost entirely **prohibited competition from private space ventures**. A law repealed only in 1998 forbade private companies to return anything—hardware, moon rocks, or passengers—to Earth from space. While the repeal of this law—and Congress’s insistence that NASA consider privatizing the space shuttle—are steps in the right direction, much remains to be done. NASA could learn from Star Trek: not from its bureaucratic vision, but from the methods that have made the franchise itself so successful. While many entertainment companies jealously protect their creations through copyright law, Paramount Pictures’ policy toward Star Trek has been somewhat different. Until recently, it has generally kept hands off, encouraging private individuals to write their own stories, start their own clubs—even make their own movies or write episodes for Star Trek: The Next Generation, Voyager, and Deep Space Nine. It has spurred the initiative of individual fans, and that is largely the cause of Star Trek’s vast Success. Law professor Dorothy Howell writes in her book Intellectual Properties and the Protection of Fictional Characters, “Fandom has played a major creative role in the evolution of the crew of the Enterprise.”[1] Soon after the original series’ cancellation in 1969, fans began writing their own stories involving the crew members and publishing them in amateur magazines called “fanzines.” The popularity of the fanzines helped to keep Star Trek alive and to bring about the first movie in 1979. David Gerrold, who wrote the popular Star Trek episode “The Trouble with Tribbles,” describes fanzines in his book The World of Star Trek: A fanzine—look it up, it’s in the dictionary—is an amateur magazine . . . . The fan publisher pays for it himself and generally edits it himself, too: all the articles and artwork are voluntary, and generally the fan sells just enough copies to other fans to break even on the whole thing . . . . Fanzines are probably the most important avenue of communication between fans.[2] Rather than cracking down on fanzines, Paramount took an almost laissez-faire attitude toward them. (Some fanzines even featured sexually explicit stories about the Enterprise crew. As one fan put it in the recent documentary film Trekkies, “We thought that either Gene [Roddenberry, the show's creator] or the studio would put a stop to it, but the studio never really seemed to care.”[3]) Star Trek: The Next Generation, Deep Space Nine, and Voyager are the only shows in Hollywood that accept unsolicited scripts from fans. Star Trek’s fans are an often-lampooned bunch, ranging from politicians and professors to obsessive teenagers. One teen-aged fan featured in Trekkies, Gabriel Koemer, showed how his local club had written their own Star Trek-based movie, complete with costumes and spectacular special-effects sequences that Koerner rendered on his home computer. The private Star Trek entrepreneurs were also responsible for the now frequent Star Trek conventions. Paramount Pictures didn’t begin the conventions—but they haven’t discouraged them either. As William Shatner (Captain Kirk) writes, in the 1970s “Star Trek parties began springing up on college campuses, where whole groups of Trek-nuts got together to watch the show and celebrate their fascination with the series.”[4] Now conventions are monthly events, with thousands of participants and millions of dollars in sales. Starfleet International, a club of about 4,000 Star Trek fans, with a vast Web site and its own newsletter, is another example of Star Trek activity. Like many other clubs, it’s not officially licensed by Paramount. In fact, the studio sponsors only one official fan club—and it’s not all that popular. I asked one amateur Webmaster about Paramount’s attitude toward fan-created clubs. He described how in 1996 Paramount’s parent company, Viacom, tried to close down fan-created Web sites that competed with its official site. “Fortunately, they came to their senses, made their site free to all, and only went after those Webmasters that had blatantly distributed stolen property on the Web,” he told me. “I asked for permission! Of course, I had to make a few changes to the site (disclaimers on every page and such), but that was a small price to pay to be allowed the freedom to continue using ‘copyrighted’ content . . . . Of course, Paramount has now realized the obvious: fan sites translate into free advertising!”[5] Other fans complained that Paramount has recently changed its attitude toward Star Trek fans and consequently damaged the franchise. “There have been instances, especially and quite frankly only in recent years, that Paramount has made some mistakes in the treatment of the fan base,” Koerner told me.[6] The studio began to take action not just against Webmasters, but also against some amateur theater productions and makers of prop replicas such as toy phasers. “It was not like this before, when fan replicas were a booming industry at conventions. Convention dealer tables have become less colorful and interesting as a result of Paramount’s cracking down.” In short, Paramount’s recent change in attitude has had the worst results: “Not only has the mainstream audience basically drifted away from Star Trek completely, the fan base began to turn a bit sour with this.” It would be terrible if Paramount Pictures were to abandon its hands-off attitude toward fans. So far it has yielded a great deal. Radio shows about Star Trek, sea cruises with a Star Trek theme, and even a Las Vegas casino weren’t devised by Paramount executives—but Paramount encouraged private enterprise to expand the popularity of the series until it had millions of fans on every continent. Star Trek the phenomenon is the result of decentralized planning and private decision-making. David Gerrold calls this the “Dandelion Effect” (“Blow on a dandelion. You’ll see what I mean.”): “Organized (you should pardon the expression) fandom touches about five thousand people in the United States. Disorganized fandom reaches a lot more. I make no guesses at the number, but every really intense fan is merely a nucleus at the core of ten or twenty other human beings, whose interest in science fiction is not quite so rabid, but who enjoy the contact with someone whose interest is.”[7] Lessons for NASA NASA should learn from the Dandelion Effect. Organizations like the Space Frontier Foundation and ProSpace argue that exploration off the earth can’t come from centralized planning, but only from entrepreneurial missions**—from the free market**. As the Space Frontier Foundation’s Rick Tumlinson puts it, imagine that at the end of the Lewis and Clark expedition, the government had reserved the west for itself: “A new Waggonautics and Wildernautics Agency is created to manage the frontier . . . . Some 30 years after the original expedition a small but relatively high-tech cabin is reaching completion some hundred miles west of the Mississippi. Serviced by a completely self-sufficient giant Conestoga Shuttle, the cabin faces delay after delay as government priorities shift, and there is doubt as to if it will ever be ready for its first four Wildernauts.” After 30 years, **NASA has become a bloated government program**, using tax dollars to subsidize $150 million space shuttle launches, building $100 billion space stations (while private companies could do it for $70 million), and employing thousands of bureaucrats to do things not even slightly space-related—such as the 200- member office of the Inspector General, which costs $20 million per year to (ironically enough) **prevent wasteful spending**. NASA administrator Daniel Goldin recently embraced the idea of privatizing space exploration, saying that “As good as it is that you all have space in your hearts, it will only work and last if you also have money in your pockets. **It is a business, and we must treat it like one in order to succeed**.”[8] But NASA also recently prohibited advertising on the surfaces of the space station. Advertising, of course, could bring in much-needed revenue. Pizza Hut recently paid the Russians over $1 million to paint their logo on a rocket.

## Turns Case – 2NC

### Private investment solves the case better

**PHYSORG ‘10** (February 1, “NASA: Good night moon, hello new rocket technology”, http://www.physorg.com/news184252738.html, MinR)

Besides redirecting money to new technologies, NASA is getting an extra $6 billion over five years to encourage companies to build private spaceships that NASA could rent. Many of those companies are run by Internet pioneers. The companies included in the pilot project include Blue Origin, which is run by Amazon founder Jeff Bezos. Another firm already building private rockets is run by PayPal founder Elon Musk. NASA will also spend an additional $2.5 billion over five years for more research on how global warming is affecting Earth, including replacing a carbon dioxide monitoring satellite that crashed last year. NASA will also extend the life by several years of the International Space Station, which had been slated for retirement in 2016. NASA's yearly budget is $19 billion. NASA said if the private companies work well on their unproven spaceships, astronauts could fly in them to the space station as soon as 2016. After the next five space shuttle flights, NASA will have to hitch rides to the space station on Russian rockets. "The truth is we were not on a sustainable path to get back to the moon," NASA administrator Charles Bolden said in a telephone conference call. "**We were neglecting investments in key technologies**."

### Private innovation key to safety and deaths

**BALAKER ‘5** (Ted, is the Jacob's Fellow at Reason Foundation, August 1, “Spaceflight in the Private Sector Will Eliminate Bureaucratic Drag”, http://reason.org/news/show/spaceflight-in-the-private-sec, MinR).

Yet we must consider the shuttle's grounding, the Challenger and Columbia tragedies, and other setbacks alongside the triumphs. All Americans look back wistfully on Neil Armstrong's moonwalk and NASA proudly points to inventions, from satellite broadcasting to smoke detectors, that our space program helped develop. Congress seems impressed. The House just voted to give NASA $34 billion over the next two years. But what will we get for the money? Now is the time to remember that **innovation's best fuel is freedom,** **not federal funding**. Entrepreneurs like Branson and Rutan, not NASA, **are the future of space travel**. Consider safety. Since humans began venturing into space, 4 percent of astronauts have died in the process. Rutan, whose SpaceShipOne was the first private manned ship to enter space, notes that **you can't run a business killing 4 percent of your customers**. Rutan wants as many people as possible to fly in his spaceships and that's one reason he's obsessed with safety. Rutan's craft features a "care-free re-entry" design. It allows the ship to realign itself automatically, making it much safer to plunge back into the earth's atmosphere. When I interviewed him recently, Rutan pointed out that, after 44 years of manned space flight, NASA still hasn't achieved the kind of safety breakthroughs his small team achieved in a just a few years. And what about scientific breakthroughs? Officials once expected the space shuttle to launch as often as every week, but decades later even yearly liftoffs are hard to come by. Meanwhile, the space station's scientific expectations keep getting pared back even as its cost swells past the $100 billion mark, more than a dozen times early estimates. When NASA does tally up an impressive accomplishment, like crawling across Mars and beaming back intriguing findings about the red planet, it's easy to marvel at it and forget that sticking with the status quo can actually mean passing up even greater accomplishments. What if, instead of a top-down government-controlled monopoly, space exploration developed like aviation? Aviation flourished in an environment of decentralized experimentation. Early aviators produced all sorts of rickety contraptions, but the good ideas quickly separated themselves from the pack. Imagine that only 24 years separated Charles Lindbergh's trans-Atlantic trip from the Wright Brothers' herky-jerky jaunt into history. Back then, the creativity of early inventors was stoked by over 100 incentive prizes and when Rutan's team claimed the $10 million Ansari X Prize, aimed at spurring private space travel, with two suborbital flights last year it signaled a return to aviation's entrepreneurial roots. Indeed a presidential commission recently released a report outlining how the government could harness private creativity. Why not, the report asked, offer up to a billion dollars to the first organization that can return man to the moon? Under that scenario we wouldn't be limiting ourselves to NASA's capabilities. As Branson put it, "Like many millions of people growing up in the Sixties who witnessed the wonder of man walking on the moon - I dreamt that one day I too would make that 'one small step...'! Unfortunately though, over the last three decades, many people gave up hope - luckily people like Burt Rutan never did. His vision has allowed people, like me, to dream again." **It's time to move past the era when governments monopolized space** and celebrate the entrepreneur's return to the sky.

## XT – Econ Impact: Jobs

### Jobs

**COLLINS AND AUTINO ’9** (Patrick Collins, Expert in the economics of energy supply from space, professor of economics at Azabu University in Japan, and a Collaborating Researcher with the Institute for Space & Astronautical Science, as well as adviser to a number of companies, AND\*\* Adriano Autino, prolific science and space writer/lecturer for leading magazines, journals, and space advocate organizations, as well as Italian entrepreneur, “What the Growth of a Space Tourism Industry Could Contribute to Employment, Economic Growth, Environmental Protection, Education, Culture and World Peace”, 11 June 2009, <http://www.spacefuture.com/archive/what_the_growth_of_a_space_tourism_industry_could_contribute_to_employment_economic_growth_environmental_protection_education_culture_and_world_peace.shtml>, MinR)

In most countries, most of the population do not have economically significant land holdings, and so employment is the economic basis of social life, providing income and enabling people to have stable family lives. The high level of unemployment in most countries today is therefore not only wasteful, it also causes widespread poverty and unhappiness, and is socially damaging, creating further problems for the future. One reason for investing in the development of passenger space travel, therefore, is that it could create major new fields of employment, capable of growing as far into the future as we can see. As of 2001, the hotel, catering and tourism sector was estimated to employ 60 million people world-wide, or 3% of the global workforce, and 6% of Europeans [15]. Hence we can estimate that the passenger air travel industry, including airlines, airports, hotels and other tourism related work, indirectly employs 10–20 times the number of people employed in aircraft manufacturing alone. Likewise, passenger space travel services could presumably create employment many times that in launch vehicle manufacturing—in vehicle operations and maintenance, at spaceports, in orbiting hotels, in many companies supplying these, in services such as staff training, certification and insurance, and in a growing range of related businesses. This possibility is particularly valuable because high unemployment, both in richer and poorer countries, has been the major economic problem throughout the world for decades. Consequently the growth of such a major new market for advanced aerospace technology and services seems highly desirable, as discussed further in [16]. By contrast, in recent years employment in the traditional space industry in USA and Europe has been shrinking fast: a 2003 report by the US Federal Aviation Administration stated that employment in launch vehicle manufacturing and services fell from 28,617 in 1999 to 4828 in 2002, while employment in satellite manufacturing fell from 57,372 to 31,262 [17]. Likewise, European space industry employment fell by 20% from 1995 to 2005; the major space engineering company Astrium cut 3300 staff from 2003 through 2006; and in 2005 alone, European prime contractors cut 13.5% of their staff or some 2400 people [18]. Unfortunately, the probability of space industry employment recovering soon is low, because satellite manufacturing and launch services face both low demand and rapidly growing competition from India and China, where costs are significantly lower. It is therefore positively bizarre that government policy-makers have declined to even discuss the subject of investing in the development of passenger space travel services, and have permitted no significant investment to date out of the nearly 20 billion Euro-equivalents which space agencies spend every year! This is despite the very positive 1998 NASA report "General Public Space Travel and Tourism" [19], and the NASA-funded 2002 "ASCENT" study referred to above [2,3]. In the capitalist system, companies compete to reduce costs since this directly increases their profits. However, reducing the number of employees through improving productivity raises unemployment, except to the extent that new jobs are created in new and growing industries. In an economy with a lack of new industries, increasing so-called "economic efficiency" creates unemployment, which is a social cost. In this situation, governments concerned for public welfare should either **increase the rate of creation of new industrie**s, and/or slow the elimination of jobs, at least until the growth of new industries revives, or other desirable counter-measures, such as new social arrangements, are introduced. These may include more leisure time, job-sharing, and other policies designed to prevent the growth of a permanent "under-class" of unemployed and "working poor"—a development which would pose a major threat to western civilisation. One of the many ill effects of high unemployment is that it weakens governments against pressure from corporate interests. For example, increased restrictions on such undesirable activities as arms exports, unfair trade, environmental damage, corporate tax evasion, business concentration, advertising targeted at children, and anti-social corporate-drafted legislation such as the "codex alimentarus", "tort reform" and compulsory arbitration are socially desirable. However, when unemployment is high, corporations' arguments that government intervention would "increase unemployment" have greater inﬂuence on governments. As outlined above, the opening of near-Earth space to large-scale economic development, based initially on passenger space travel services, promises to create millions of jobs, with no obvious limits to future growth. At a time when high unemployment is the most serious economic problem throughout the world, **developing this family of new industries** as fast as possible should be a priority for employment policy. To continue economic "rationalisation" and "globalisation" while not developing space travel is self-contradictory, and would be both economically and socially very damaging.

## Impact – Space Tourism

### Innovation key to space tourism

**SUMMERS AND RANDAZZO ‘11** (Adam, M.A. in Economics from George Mason University and Bachelor of Arts degrees in Economics and Political Science from the University of California, Los Angeles, has written extensively on privatization, government reform, law and economics, and various other political and economic topics, policy analyst at Reason Foundation, AND\*\* Anthony Randazzo, director of economic research for Reason Foundation, a nonprofit think tank advancing free minds and free markets. He specializes in housing finance, financial services regulation, and macroeconomic policy. He also does substantive work on privatization, tax policy, monetary policy, and trade research, February, “Annual Privatization Report 2010: Federal Government Privatization”, http://reason.org/files/federal\_annual\_privatization\_report\_2010.pdf, MinR).

**Space transportation is not just for the government anymore,** either. The private sector is also beginning to develop a space tourism market for private consumers. Leading the way is Virgin Galactic, which is already taking reservations for commercial space flights. The trips cost $200,000 and will last two and a half hours, including five minutes of weightlessness. According to the company, some 380 customers have already put down deposits totaling more than $50 million to take the trip. Virgin Galactic expects to begin commercial operations sometime between the summer of 2011 and the spring of 2012. Virgin Galactic’s spacecraft, SpaceShipTwo, designed and built in partnership with Mojave, California-based Scaled Composites, achieved its first solo glide flight after being carried to an altitude of 45,000 feet by its jet-powered mothership, WhiteKnightTwo, in October 2010. The “flight marks another key milestone towards opening the space frontier for private individuals, researchers, and explorers,” said John Gedmark, executive director of the Commercial Spaceflight Federation. SpaceShipTwo was built by famed aircraft designer Burt Rutan based on a prototype (SpaceShipOne) that won the $10 million Ansari X Prize in 2004 for being the first manned private rocket to reach space. In addition to its suborbital trips for space tourists, Virgin Galactic announced in December 2010 that it was partnering with Orbital Sciences and Sierra Nevada Corp. in separate bids for NASA’s $200 million Commercial Crew Development program for orbital flights to carry U.S. astronauts to the International Space Station. The companies’ designs “could revolutionize orbital space flight in much the same way that SpaceShipTwo has revolutionized suborbital space flight,” Virgin said at the time in a statement. NASA is expected to announce two or more projects for funding by March 2011. Less than two weeks after the SpaceShipTwo test flight, Spaceport America, the world's first spaceport specifically designed for commercial purposes, celebrated the completion of a nearly two-mile long concrete runway. The taxpayer-funded spaceport is located in the New Mexico desert approximately 45 miles north of Las Cruces. **Virgin Galactic will be the anchor tenant of the spacepor**t, and state officials hope to add other companies interested in space research and payload delivery. In the future, the spaceport may see competition from other facilities, such as the Mojave Air and Space Port in Mojave, California. The Mojave facility, which offers a general-use public airport, civilian test flight center, space industry development and aircraft heavy maintenance and storage, became the nation’s first inland spaceport when it received its spaceport operator’s license from the Federal Aviation Administration in 2004.

**Only space tourism can prevent inevitable extinction. It would be hell on earth in the interim from resource wars, environmental destruction, diseases, and cosmic events**

**Collins & Autino 10** – Professor of Life & Environmental Science @ Azabu University & Systems Engineer @ Andromeda Inc., Italy [Patrick Collins (Expert in the economics of energy supply from space) & Adriano Autino, “What the growth of a space tourism industry could contribute to employment, economic growth, environmental protection, education, culture and world peace,” Acta Astronautica 66 (2010) 1553–1562]

High Return in Safety from Extra-terrestrial Settlement Investment in orbital access and other space infrastructure will facilitate the establishment of settlements on the Moon, Mars, asteroids and in man-made space structures. In the first phase, development of new regulatory infrastructure in various Earth orbits, including property/usufruct rights, real estate, mortgage financing and insurance, traffic management, piloting, policing and other services will enable the population living in Earth orbits to grow very large. Such activities aimed at making near-Earth space habitable are the logical extension of humans' historical spread over the surface of the Earth. As trade spreads through near-Earth space, settlements are sure to follow, of which the inhabitants will add to the wealth of different cultures which humans have created in the many different environments in which they live. The success of such extra-terrestrial settlements will have the additional benefit of reducing the danger of human extinction due to planet-wide or cosmic accidents [20, 26]. These horrors include both man-made disasters such as nuclear war, plagues or climate change, and natural disasters such as super-volcanoes or asteroid impact. It is hard to think of any objective that is more important than preserving peace. Weapons developed in recent decades are so destructive, and have such horrific, long-term side-effects that their use should be discouraged as strongly as possible by the international community. Hence, reducing the incentive to use weapons by rapidly developing the ability to use space-based resources on a large scale is surely equally important [15, 20, 28]. The achievement of this depends on the low space travel costs which, at the present time, appear to be achievable only through the development of a vigorous space tourism industry. SUMMARY As discussed above, if space travel services had started during the 1950s when they first could, the space industry would be enormously more developed than it is today. Hence the failure to develop passenger space travel has seriously distorted the path taken by humans' technological and economic development since WW2, away from the path which would have been followed if capitalism and democracy operated as intended. Technological know-how which could have been used to supply services which are known to be very popular with a large proportion of the general public has not been used for that purpose, while suffering due to the unemployment and environmental damage caused by the resulting lack of new industries have increased. In response, policies should be implemented urgently to correct this error, and to catch up with the possibilities for industrial and economic growth that have been ignored for so long. This policy renewal is urgent because of the growing danger of unemployment, economic stagnation, climate change, educational and cultural decline, resource wars and loss of civil liberties which face civilisation today. In order to achieve the necessary progress there is a particular need for collaboration between those working in the two fields of civil aviation and civil space. Although the word "aerospace" is widely used, it is largely a misnomer since these two fields are in practice quite separate. True "aerospace" collaboration to realise passenger space travel will develop the wonderful profusion of possibilities outlined above. Humans' Urgent Choice: Heaven or Hell on Earth? As discussed above, the claim that resources are running out can be used to justify wars which may never end: present-day rhetoric about "the long war" or "100 years war" in Iraq are current examples. If political leaders do not change their viewpoint, the recent aggression by the rich, "Anglo-Saxon" countries and their cutting back of traditional civil liberties are ominous for the future. However, this "hellish" vision of endless war is based on an assumption about a single number – the future cost of travel to orbit – about which a different assumption leads to a literally "heavenly" vision of peace and ever-rising living standards for everyone forever. If this cost stays above 10,000 Euros/kg, where it has been unchanged for nearly 50 years, the prospects for humanity are bleak. But if humans make the necessary effort, and use the tiny amount of resources needed to develop passenger space vehicles, then this cost will fall to 100 Euros/kg, the use of extra-terrestrial resources will become economic, and arguments for resource wars will evaporate entirely. This is not a decision for the far future or the 22nd Century. It has to be made very soon if humans are to have a reasonable future. The main reason why this step has not been taken yet seems to be lack of understanding by investors and policy-makers of the myriad opportunities that space travel will create. Now that the potential to catch up half a century’s delay in the growth of space travel is becoming understood, continuing to spend 20 billion Euro equivalents/year on government space activities while continuing to invest nothing in developing passenger space travel would be a gross failure of economic policy, and strongly contrary to the economic and social interests of the public. As this policy error is corrected, and investment in profitable space projects grows rapidly in coming years, we can look forward to a growing world-wide boom. Viewed as a whole, humans' industrial growth has been seriously underperforming for decades, due to the failure to exploit these immensely promising fields of activity. The tens of thousands of unemployed space engineers in Russia, America and Europe alone are a huge waste. The millions of disappointed young people who have been taught that they cannot travel in space are another enormous wasted resource

## Impact – Space Leadership

**Space commercialization is key to preventing the perception of orbital despotism to preserve peaceful rise of space leadership**

**Brown 09** – Masters of Science from Rajaratnam School of International Studies @ Nanyang Technological University [Trevor Brown, “Soft Power and Space Weaponization,” Air & Space Power Journal - Spring 2009, pg. [\_\_http://www.airpower.maxwell.af.mil/airchronicles/apj/apj09/spr09/brown.html\_\_](http://www.airpower.maxwell.af.mil/airchronicles/apj/apj09/spr09/brown.html)

Evidently, rhetoric emanating from the United States regarding space has made members of the international community suspicious that America could bar them from the medium on nothing more than a whim. Such apprehensions unnecessarily contribute to further reductions in soft power. The United States should take care to ensure that other nations receive the impression that it has no intention of hindering their peaceful use of space. If those countries find current US space supremacy tolerable, then perhaps in time they could endure the United States’ possession of weapons if this were a significant aspect of US primacy in space and maintenance of the status quo. But if US rhetoric and posturing leave other nations with the belief that the United States has stratagems for orbital despotism, then the international system will hesitate to look to it for leadership. Furthermore, even if most nations cannot compete in space, they will nevertheless do whatever they can to oppose the United States. “Merchant Shipping” The United States would do well to keep a low profile for its military space program and burnish its technological image by showcasing its commercial and scientific space programs. Doing so would enable it to accumulate rather than hemorrhage soft power. Such a rationale is not lost on the Chinese, who certainly have had their successes in recent years in building soft power and using it to extend their influence around the globe. According to National Aeronautics and Space Administration (NASA) administrator Michael Griffin, the Chinese have a carefully thought-out human-spaceflight program that will take them up to parity with the United States and Russia. They’re investing to make China a strategic world power second to none in order to reap the deals and advantages that flow to world leaders.30 Analysts believe that the United States’ determination to maintain dominance in military space has caused it to lose ground in commercial space and space exploration. They maintain that the United States is giving up its civilian space leadership—an action that will have huge strategic implications.31 Although the US public may be indifferent to space commerce or scientific activities, technological feats in space remain something of a marvel to the broader world. In 1969 the world was captivated by man’s first walk on the moon. The Apollo program paid huge dividends in soft power at a time when the United States found itself dueling with the Soviets to attract other nations into its ideological camp. Unless the United States has a strong presence on the moon at the time of China’s manned lunar landing, scheduled for 2017, much of the world will have the impression that China has approached the United States in terms of technological sophistication and comprehensive national power.32 If recent trends hold, this is likely to come at a time when the new and emerging ideological confrontation between Beijing and Washington will have intensified considerably.33 The most recent space race reflects the changing dynamics of global power. “Technonationalism” remains the impetus for many nations’ space programs, particularly in Asia: “In contrast to the Cold War space race between the United States and the former Soviet Union, the global competition today is being driven by national pride, newly earned wealth, a growing cadre of highly educated men and women, and the confidence that achievements in space will bring substantial soft power as well as military benefits. The planet-wide eagerness to join the space-faring club is palpable.”34 India and Japan are also aggressively developing their own space programs.35 But the United States does not necessarily have to choose between civilian and military space programs since much of the technology developed for space is dual use. The space industry provides a tremendous opportunity for militaries that desire more affordable access and space assets that can significantly augment terrestrial forces. As Alfred Thayer Mahan pointed out, “Building up a great merchant shipping lays the broad base for the military shipping.”36 The US military can maximize its resources, not only financially but also politically, by packaging as much military space activity as possible into commercial space activity. One example involves satellite communications. The arrangement the Pentagon has with Iridium Satellite LLC gives the military unlimited access to its network and allows users to place both secure and nonsecure calls or send and receive text messages almost anywhere in the world.37 Another example involves space imagery. Even though the government must maintain sophisticated imaging capabilities for special situations, it could easily meet the vast majority of its routine requirements at lower cost by obtaining commercially available imagery.38 The Air Force could also use space transportation, another emerging industry, to maximize its resources. Private ventures now under way are reducing the costs of space access considerably. It is possible that one enterprise could become an alternative to Russian Soyuz spacecraft for NASA’s missions to the International Space Station.39 Such enterprises could prove attractive, cost-effective options for delivering the Air Force’s less-sensitive payloads to Earth orbit. Space tourism, a growing industry, could enable the Air Force to procure affordable capabilities to routinely operate 60 to 90 miles above Earth.40 Advances that entrepreneurs are making in suborbital space flight could eventually evolve to a point where the Air Force would find it far easier, politically as well as financially, to acquire platforms capable of delivering munitions from space. Conclusion A glance at the global strategic situation reveals many nations rushing to develop space capabilities. Ostensibly civilian, the capabilities in development around the world are largely dual use and will have profound effects on the balance of power. The United States, therefore, would be foolish to slow the pace of its own space development. The issue at hand is not whether to proceed with space weapons but how to proceed with these capabilities and effectively manage the security dilemmas that will inevitably arise. By assuming a posture which suggests that its intentions in space are competitive scientific and commercial pursuits—and which does not suggest the desire to barricade the medium in times of peace for the purpose of geopolitical leverage—the United States can proceed without causing undue angst in the international community. Once we have laid the foundation for commercial activities (i.e., “merchant shipping”), military capabilities—or “military shipping”—will follow in due course and with far less controversy. If US policy makers can showcase scientific and commercial space endeavors while avoiding the perception of orbital despotism, they can steadily build dominant military space capabilities and retain soft power.

# ==== Spending NB ====

## Spending NB – 1NC

### Saves NASA money

**DINERMAN ‘9** (Taylor, well-known and respected space writer regarding military and civilian space activities May 11, “NASA Approves Partial Privatization of the Space Program”, http://www.foxnews.com/story/0,2933,519609,00.html, MinR)

"Our government space program has become over-burdened with too many objectives, and not enough cash," says William Watson, executive director of the Space Frontier Foundation, a Houston-based group promoting commercial space activities. Watson said that **allowing private companies to handle** routine orbital **duties could free up NASA** to focus on returning to the moon and going to Mars. Scolese said that $80 million of the stimulus money will be awarded to the company that demonstrates the best "crewed launch demo" — a prototype, based on existing cargo-capsule designs, modified for humans. The agency was careful to note that the competition will be an open one. Two well-positioned spaceflight companies, SpaceX and Orbital Sciences, are seen as the leading contenders. Each already has a full line of rockets and cargo capsules ready to go, and each company's capsules can be converted to transport astronauts. Both firms were tight-lipped about their suddenly increased opportunities. Orbital Sciences didn't respond to queries; SpaceX said only that it was "encouraged by NASA's commercial crewed services initiative." But NASA's savings in cost and time could be significant. The two leading contractors are building their launch vehicles from scratch. Their designs emphasize very efficient business models and low manufacturing costs. And they operate with at most a few dozen employees at their launch sites, as opposed to the space shuttle program's standing army of almost 15,000 workers. NASA's hostility toward other American space ventures goes back at least to the early 1990s, when Lockheed Martin developed the DC-X suborbital experimental rocket, financed by the Pentagon's Strategic Defense Initiative Organization (SDIO). The goal was to get payloads into orbit with a reusable craft that was not the space shuttle, which the Defense Department saw as unreliable and costly. NASA was hardly enthusiastic about this approach. It believed that it would be many years before such Reusable Launch Vehicles (RLVs) would be ready to fly, and some inside the agency saw it as a threat to its monopoly on human space flight. In 2000, NASA even objected to the cash-strapped Russian space agency's $20 million deal to send up the first "space tourist," American billionaire Dennis Tito. But three things happened. -- The February 2003 Columbia space-shuttle disaster, in which seven astronauts died, forced NASA to rethink its way of doing business. The Columbia Accident Investigation Board's final report "found a NASA blinded by a 'Can Do' attitude, a cultural artifact of the Apollo era that was inappropriate in a Space Shuttle program so strapped by schedule pressures and shortages that space parts had to be cannibalized from one vehicle to launch another." NASA's tight relationship with a small number of major contractors and its persistent problems integrating political and legal demands with the need to maintain engineering excellence had stressed the agency to the breaking point, the report said. -- In January 2004, President George W. Bush decided to "reboot" the space program, announcing his "Vision for Space Exploration" to go back to the moon and to eventually send humans to Mars. -- And in October 2004, engineer Burt Rutan's SpaceShipOne won the $10 million Ansari X Prize. The rocket was the first privately built flying machine ever to reach space. There was a catch to the Bush plan: As part of the ambitious new program, the 30-year-old space-shuttle program will end next year, saving NASA $3 billion a year to spend on new spacecraft, the first of which is scheduled to fly in late 2015. But that has created a gap in America's ability to launch astronauts and cargo to the International Space Station (ISS). For at least five years, NASA will depend primarily on Russia to get Americans into space, which doesn't sit well with many space experts and politicians. As a result, NASA quickly became much friendlier to commercial ventures. In late 2005, then-agency Administrator Michael Griffin announced that NASA was considering buying crew and cargo transportation services to the ISS from private industry. "We believe," he said, "that when we engage the engine of competition, these services will be provided in a more cost-effective fashion than when the government has to do it," Griffin said. In 2006, the first round of the Commercial Orbital Transportation Services (COTS) contracts was won by SpaceX corporation of Hawthorne, Calif., which received a contract worth $278 million, and by Rocketplane Kistler of Oklahoma City, which was supposed to get $207 million. Space Exploration Technologies Corporation, or SpaceX for short, founded by PayPal entrepreneur Elon Musk, was already hard at work on its Falcon series of rockets. It also had done preliminary design work on a multipurpose capsule called the Dragon, which could be adapted to carry either crew or cargo to the ISS on a Falcon 9. SpaceX was funded mostly by Musk's personal fortune, but also had a small number of contracts to launch satellites for the Defense Department and from overseas. Rocketplane Kistler, on the other hand, was an innovative but underfunded enterprise. It promised to build on an earlier RLV program that had failed to get off the ground after a promising start in the late 1990s. In October 2007, Rocketplane Kistler's NASA contact was terminated due to its failure to meet the agreed-upon financial milestones. The remaining $170 million from the Rocketplane Kistler disbursement was awarded to Orbital Sciences Corporation of Dulles, Va., for its Taurus 2 launcher and Cygnus capsule combination. Orbital, one of the few entrepreneurial space firms that have successfully gone from start-up to billion-dollar status, not only builds the Pegasus and Taurus launchers, but also has established a decent reputation building small-to-medium-sized commercial and scientific satellites and space probes. Most importantly, both SpaceX and Orbital Sciences are well-funded and commercially viable, a crucial factor to NASA. If a private company shows it's ready to invest its own funds, that's a lot better than people who want to "help spend NASA's money," as Griffin once put it in a different context. But not everyone in NASA's old guard is pleased with this approach. "In order to preserve U.S. leadership in space, it would be better to invest in a lifting body lander, a spaceplane that would land on a runway like the Shuttle does now," Apollo 11 astronaut Buzz Aldrin, the second man to walk on the moon, told FoxNews.com. "There is a [NASA] design called the HL-20 that could be launched on an existing reliable rocket and could be ready for a demonstration flight in 2013." But to the Space Frontier Foundation's Watson, the sky's the limit. "Let's have an American competition in space — to create good jobs, fuel innovation and close the [spaceflight] gap more quickly," he said. "With private funds matching government investment, we can dramatically leverage taxpayer dollars to produce breakthroughs in a new American industry — commercial orbital human spaceflight."

## Spending NB – 2NC

### No funding left for NASA. Private sector solves the spending DA

**SUMMERS ‘9** (Adam, M.A. in Economics from George Mason University and Bachelor of Arts degrees in Economics and Political Science from the University of California, Los Angeles, has written extensively on privatization, government reform, law and economics, and various other political and economic topics, policy analyst at Reason Foundation, July 31, “Future of Space Program May Depend on Private Space Transportation”, http://reason.org/blog/show/future-of-space-program-may-de, MinR).

Members of a subcommittee of the Review of U.S. Human Space Flight Plans Committee, an independent, blue-ribbon committee formed to analyze the U.S. space program, have recommended that the National Aeronautics and Space Administration (NASA) utilize private companies to transport cargo and people to and from the International Space Station. Relying on private firms for transportation services **would free up NASA resources** for more ambitious ventures, such as human missions to the moon or Mars. "I think you will find out there are a lot of people who will rise and compete," former Boeing executive Bohdan "Bo" Bejmuk told the panel. "Some of them will fail, some of them will succeed, but you will have essentially created a new industry." Private space companies like Space Exploration Technologies Corporation, commonly known as SpaceX, and Orbital Sciences Corporation have already made great strides in developing rockets and launching satellites and space probes. SpaceX won a $278 million government contract in 2006 as part of NASA's Commercial Orbital Transportation Services projects. In 2007, Orbital Sciences took over a contract worth $170 million for its Taurus 2 launcher and Cygnus capsule combination after underfunded venture Rocketplane Kistler failed to deliver on its financial objectives. The potential cost-saving privatization recommendation comes as questions are arising about the accuracy of NASA's budget and the future of the space program. Current plans call for seven more shuttle flights through September 30, 2010, after which the shuttle fleet is to be decommissioned and new space vehicles are designed and built. The new vehicles are not expected to be completed for some time, however, leading to a "launch gap" of five to seven years. But according to human space flight review panel member Sally Ride, former astronaut and the first American woman in space, NASA's budget--which totals $18 billion for the current fiscal year--is unlikely to even meet current goals. "We have come to believe very firmly that it's important to have a realistic view of what the existing program as it will realistically unfold most likely will cost and not put any smoke and mirrors to the budget to make it look like it will fit under the budget profile," Ride said during a public meeting earlier this week. In addition, panel members noted that NASA was unlikely to complete work on the space station and retire the shuttle fleet before March 2011, which would require additional funding. "But, of course, **there is no funding for that possibility**," Ride noted. "That's setting you up right away for a budget problem."

# ==== AFF ====

## Permutation

### Cooperation between private and public solves

Zervos & Seigel, 2008 [Vasilis, Professor of economics and space policy at the International Space University with a BA in Economics from the American College of Greece, an M.Sc. from the University of Birmingham, UK, and a Ph.D from the University of York, UK, and David, Dean and Professor School of Business, University at Albany, “Technology, Security, and policy implications of future transatlantic partnerships in space: lessons from Galileo”, Research Policy Volume 37, Issue 9, October 2008, Pages 1630-1642]

US efforts to privatize space capabilities have focused on key markets, such as space telecommunications, space transportation and earth observation. However, full privatization of assets such as the Space Shuttle is controversial, given the investment entailed and security concerns (Macauley, 2003). In Europe, the focus on more civil-oriented programs facilitates public–private partnerships and the formation of European multinationals in similar key markets. A breakdown of the consolidated turnover of the European space manufacturing industry in 2002 is illustrative, with Telecommunications, Launching and Earth Observations activities accounting for over €3.5 billion out of a total €4.7 billion, which includes Navigation (€80 million) and scientific activities (Eurospace, 2004). The navigation market was expected to grow rapidly by 2010, based on novel technological uses of navigation and positioning services by automobiles, mobile communication users and commercial airliners (EC, 2002), and other commercial applications. Despite encouraging market projections for navigation markets for example, such industries are subject to numerous market failures. The most prominent market failures are related to early-stage technology and risks associated with future market size, as well as uncertainties in the development of competing and existing publicly developed and owned systems and future security restrictions. Thus, it is unlikely that such a project can be undertaken by industry alone despite the existence of optimistic market projections and returns (see Section 3). For example, in the presence of conflict, such as war between two nations or civil war, where adversaries utilize the signals for military purposes, the stakeholders exercising political pressure for or against regionally jamming the signal could range from the UN and the authorities in the country in question, to financial institutions owning shares in the enterprise. Although ultimately the commercial entity is responsible for obeying the laws and regulations of the licensing country, numerous issues relating to politics and international law are likely to turn potential investors with no public involvement away into ‘safer’ and less strategically significant investments. Multi-public–private partnerships (MP3) spread the financial risk associated with high-technology requirements, while easing investor concerns over politically sensitive security issues and decisions. Moreover, the presence of multiple countries in space projects results in more resilient public commitments, reassuring the private firms.

### Complete shift to the private sector causes imposition of new government regulation – collapses innovation and tech.

Sterner 2010, (Eric R. George C. Marshall Institute, April, “Worthy of a Great Nation? NASA’s Change of Strategic Direction,” George C. Marshall Institute Policy Outlook, http://www.marshall.org/pdf/materials/797.pdf)

The Obama administration’s approach will undo that balance. While it has retained and expanded COTS, in many ways to its credit, its cancellation of Constellation raises the stakes for COTS and commercial human spaceflight in general. It will no longer be an experiment in promoting innovation with the potential to evolve into something more comprehensive. Instead, it will become the government’s primary means of sending people to space. As such, there will be strong pressure on the government to exercise increased oversight and accountability, undermining, if not eventually eliminating, the very flexibility built into the COTS concept. Indeed, this is already happening. A Congressional hearing revealed an already extant conflict over responsibilities between the Federal Aviation administration, which has legal responsibility for regulating commercial human spaceflight, and NASA, which is responsible for the safety of its astronauts. Given the nature of bureaucratic politics, it is quite likely that both agencies will impose different sets of standards on commercial human spaceflight service providers. Those regulatory burdens may well flow down to suborbital service providers as well, since NASA has raised the possibility of using those service providers to enable government research. A mature industry with a healthy demand for its services may be able to respond to and carry such burdens. The commercial human spaceflight industry, which is still in its infancy, may be stifled by them. Of equal concern, it should be noted that the Congress imposed several non-mission related requirements on Constellation, such as maintaining the workforce and using as much shuttle-heritage hardware as possible. These kinds of requirements do not usually contribute to performance or cost-effectiveness, but serve other legitimate public policy goals. There is some indication that leading members of Congress will seek to impose them on the commercial industry if the industry becomes the primary means of carrying Americans to orbit.

### Cooperation solves your NB

Brannen 2010, (Thomas J.D. Candidate, Southern Methodist University Dedman School of Law, Summer, “Private Commercial Space Transportation’s Dependence on Space Tourism and NASA’s Responsibility to Both,” Journal of Air Law and Commerce, p.664

While NASA can refuse to learn from its mistakes and continue to insist on controlling all aspects of space exploration, despite its budgetary constraints, the most mutually beneficial option is to require NASA to rely on private commercial providers. The recertification of the Shuttle would require large increases in or reallocations of NASA's budget and could potentially lead to the same inefficiencies that have plagued NASA throughout its history. Instead, NASA should follow the Committee's suggestion, learn from the success of prize-encouraged innovation, and "strengthen ... incentives to the commercial providers" in their development of suitable services to utilize in its ISS operations. By implementing a potentially government-sponsored prize coupled with guaranteed contracts, NASA would serve its own purposes of shortening "the Gap" and would produce additional incentives for innovation in the private commercial space transportation industry. Likewise, by ensuring that orbiting refueling centers are developed, NASA would incentivize and improve propositions of space transportation and space tourism services such as space hotels and private orbital spacecraft, allowing NASA to focus instead on deep space exploration.

## Prizes Fail Frontline

### Risk means no one will take up the challenge

Macauley 2004 (Molly, Senior Fellow- Recources for the Future, “Advantages and Disadvantages of Prizes in aPortfolio of Financial Incentives for Space Activities”, 15-7, http://keionline.org/misc-docs/RFF\_CTs\_04\_macauley.pdf

Much of the preceding discussion has emphasized the historical success of prizes but they have some disadvantages. These include: - no provision for up-front cash flow to defray expenses; - duplication of research effort if many individuals or groups compete; - uncertainty about whether the innovation can succeed; and - delays in the pace of innovation if a lot of time elapses before it is determined that there are no winners. In addition, prizes are unlikely to meet other social objectives that government sponsorship in general, or NASA sponsorship in particular, has traditionally pursued. For example, prizes do not necessarily further these goals that NASA has frequently set forth as success measures in its R&D policy: - increase the number of academic researchers; - increase the number of scientists and engineers; - create jobs. 8 - influence political support by way of job creation; - broaden the participation of traditionally underrepresented groups in science and technology; and - prop up a particular supplier or group of suppliers to ensure choice (say, to ensure that a range of capacities is available in space transportation by dividing business among companies that offer different classes of vehicle lift) In addition, there are some disadvantages of government-sponsored prizes compared with privately sponsored prizes: - Government typically cannot commit to funding beyond a fiscal year, thus limiting the timing of the prize competition and cutting short the time that might be required for the technical achievement it awards. - Any uncertainty about whether the prize will actually be awarded due to government budgets or changes in administration will weaken if not eliminate incentives to compete. - Intellectual property rights to the achievement may need to reside with the competitor to induce participation, even though the taxpayer, by financing the prize, could fairly claim rights.

### Prizes fail – don’t spur sufficient investment or innovation.

Kalil 2006, (Thomas Special Assistant to the Chancellor for Science and Technology at UC Berkeley, December, “Prizes for Technological Innovation,” http://www.brookings.edu/views/papers/200612kalil.pdf)

Prizes have significant limitations. In most circumstances, they should not be the policy instrument of choice for science and technology. Since only winning teams receive prizes, and only after they have won, all entrants must have or raise the funds necessary to compete. Most researchers and small and medium-sized companies find it difficult to self-finance or raise external funding. For example, offering a prize for a breakthrough in high-energy physics would not work if it required physicists to raise billions of dollars to build a new particle accelerator. Furthermore, it may be impossible to clearly specify in advance what the victory conditions are, since the outcomes of fundamental research are, by definition, unknowable or difficult to quantify in advance. Many of the most interesting discoveries in science are serendipitous. Even when the goals of a prize are generally understood, it may be difficult to develop appropriately specific proxies for those goals, such as an improvement in the price-to-performance ratio of a given technology, or widespread market acceptance. Finally, prizes are more likely than traditional funding mechanisms to lead to duplication of effort, although this effect can be mitigated through careful program design (Newell and Wilson 2005).

### Prizes aren’t large enough to sustain space exploration – Mars example proves prize would need to be at least $1 billion.

Carberry, Westenberg, and Ortner, 2010 (C.A. Executive Director, Explore Mars, Inc., Artemis President, Explore Mars, Inc, and Blake Project Leader, ISRU Challenge, Explore Mars, October-November, “The Mars Prize and Private Missions to the Red Planet,” Journal of Cosmology, http://journalofcosmology.com/Mars139.html)

Could this concept be applicable to sending humans to Mars? In 2008, X-Prize founder, Peter Diamandis proposed Mega X-prizes including a human mission to Mars. However, in a recent interview, Diamandis stated that it was unlikely there would be a Mega X-Prize geared to a human mission to Mars. "I don't see a Mars Mega-X PRIZE… An incentive prize works when there's a long-term business model and the prize can drive numerous teams to spend the money to play. A private Mars mission is likely a $5B - $10B endeavor and you won't see multiple teams each raising this level…If we ever re-invented launch technology to reduce the cost by 100-fold, then I think a "humans to Mars prize" would make a lot of sense" (Diamandis 2010). While not likely to reduce launch costs by 100-fold, if SpaceX can deliver on its goal of dramatically reducing launch costs, it may bring a Mars mission down to the level where an X-Prize may be viable. In a September 7, 2010 email interview with the first author (Carberry), Elon Musk said he thought a privately financed mission would only cost $2 billion and that a prize would only have to be $1 billion. He added that it would take "ten years from starting fundraising to landing back on Earth." If Musk is correct, not only would hundreds of individuals in the United States alone have the means to fund such a prize, but hundreds would also be able to fund teams to compete.

## Prizes Link to NB

### Prizes link- they use Public funds and are unpopular in Congress

Jobes 2004 (Douglas O president of The Space Settlement Institute. “Will government-sponsored space prizes fly? November 15th http://www.thespacereview.com/article/270/1)

Unlike the privately funded X Prize, the Space and Aeronautics Prize relies primarily on taxpayer dollars for funding. Even NASA’s Centennial Challenges prize program, while technically “government-sponsored,” derives its funding from the existing NASA budget. Some types of prizes, like the [Space Settlement Initiative](http://www.spacesettlement.org/) proposed by Alan Wasser, would cost the taxpayer nothing because incentives readily available in space (such as land claim recognition on the Moon) act as the financial lure for private space development efforts. Since a government-sponsored cash prize must tap the public coffer one way or another, though, monetary prizes are a much more difficult sell in Congress.

## Taxes Fail Frontline

### Tax incentives fail wont spur private sector development

The Space Review, 2005 [ “Tax policy and space commercialization”, <http://www.thespacereview.com/article/300/1> 10-5,]

The idea behind both proposals, of course, is to encourage private funding of space startups by giving investors an immediate reward for putting up their money, regardless if the startup eventually succeeds or fails. This reward, then, would convince otherwise recalcitrant investors to pony up, know that even if they lose their money, they still got a tax credit out of it. I’ve even seen some commentators take tax policy and space to extremes: on the Space Politics weblog last week one person claimed that the proposals by liberals to roll back President Bush’s tax cuts for the wealthy, including those like Paul Allen who have already invested in space ventures, meant that the “far left is not only against public space travel, but the private kind as well.” Extreme claims like that, as you might imagine, can be easily dismissed. If we go back to the late 1990s, before the Bush tax cuts and when (horrors!) a Democrat was in the White House, there was still money flowing into private space ventures. Indeed, the mid to late 90s was the peak of a space boom, as wealthy people like Walt Anderson, Andrew Beal, Bill Gates, and Craig McCaw invested tens, even hundreds, of millions of dollars in companies like Beal Aerospace, Rotary Rocket, and Teledesic. These ventures all failed. One can make the case that even if tax reform magically allowed these people to double or triple their investment, these companies would have still failed because of changes in the market (notably, the telecom bust) or other fundamental flaws in their business plans. But what about more targeted tax incentives, like Calvert’s and Rohrabacher’s proposals? Well, even without those tax credits, there still has been considerable investment in space startups. Allen reportedly put up about $25 million to develop SpaceShipOne, and now Richard Branson plans to spend up to $100 million to develop a commercial successor. Jeff Bezos has put some fraction of his Amazon.com billions into his secretive space startup, Blue Origin, while Elon Musk has reportedly invested tens of millions of his own money into SpaceX. John Carmack has spent a lesser, but still significant, sum on Armadillo Aerospace. That’s great, but proponents of tax credits will argue that these incentives will encourage more people to invest in space companies. There are certainly other worthy companies out there to invest in, but are there really people sitting on the sidelines waiting for tax credits to take the plunge? My gut feeling is that such credits won’t help much. Why am I so negative? I believe that, credits or not, space transportation and related companies just aren’t that attractive from the standpoint of typical investors, particularly large institutional investors. Such investors are looking for companies that quickly—on the order of just a few years—grow and thrive, or at least do well enough to provide investors with an exit strategy in the form of an acquisition or IPO. Major investors know that most of the companies they invest in may fail, but they hope to have one or two “home runs” that will more than make up for their failures (in much the same way Boston Red Sox fans remember infielder Mark Bellhorn for his game-winning home run in Game 1 of the 2004 World Series, not for leading the American League in strikeouts the same season.) Credits or not, space transportation and related companies just aren’t that attractive from the standpoint of typical investors, particularly large institutional investors. Using those criteria, space ventures don’t look that appealing. For one, they have long gestation periods. As an example, look at Virgin Galactic, Branson’s space tourism venture. Branson announced his investment in 2004, but it will be at least 2007 before the company will have a chance of recording any revenue. Worse, that’s with the vehicle technology the company needs already having been developed and tested—in the form of SpaceShipOne—over the course of several years. Those kinds of timelines would try the patience of most investors, given the plethora of other opportunities that could pay off in a much shorter time period. Second, commercial space is still a small market. When telecommunications ventures that just happen to use satellites (like satellite TV providers) are eliminated, the space industry looks remarkably small: just $37 billion in 2002 revenues, or less than a single quarter’s revenue for GM. (See “What is the ‘space industry’?”, The Space Review, July 14, 2003) Most of that is tied up in what one might call “legacy” space applications: the manufacture and launch of big communications satellites, a field where there’s plenty of competition and little chance for a startup to have much success. Even space tourism, touted by the alt.space community as the savior for commercial space, looks tiny: the Futron study shows tourism won’t get above a billion dollars a year in revenues until the end of the next decade. That’s not a lot of money to chase after in the big picture. Tax credits are based on the premise that the business plans for space transportation or other space startups can almost close, and the existence of the credits will be enough of an incentive for dispassionate investors to take the plunge. But, as shown above, space doesn’t look that enticing: the potential payoffs are small and will take years to develop. There are also all the risks associated with any high-tech startup, from technologies to markets, that a venture has to overcome to make its investors any money. Given those obstacles, it’s tough to see tax credits as enough of a carrot to get investors off the sidelines.

## Privatization Fails Frontline

### Traditional models don’t apply- too much capital and no pay out means no one will invest.

Hearsey 2008 (Christopher M. Graduate Student, The American University, Department of Justice, Law & Society The American University, Washington, A Review Of Challenges To Corporate Expansion Into Outer Space http://www.astrosociology.org/Library/PDF/Hearsey\_CorporateExpansion.pdf)

Gangale, *et al*., believe the greatest problem to commercial space corporations “is the huge capital investment that is required to develop a trans-planetary infrastructure.” While some may believe that “government is the problem,” the reality is that developing a private infrastructure will require the utilization of a great amount of resources. Free-market economics cannot operate in such high cost and high risk environments, nor can private firms be expected to take on such large projects alone. Building partnerships between governments and corporations to develop such infrastructure will enable an economic and legal balance providing sufficient solutions without economically overburdening either the public or private sector. To achieve any profit in outer space an economic incentive must be established. Therefore, it will take the collective will of governments and corporations to find the best strategies to implement a viable commercial market for corporations and sustain human presence in outer space. The international norms promulgated by the *ius gentium* are not directly a barrier for corporations, but merely an element of the market since it can only be the political will that may reshape the commercial space industry.

### Privatization fails- Empirically proven for space exploration/development

Butler 2010 (Katherine, Butler is a leader writer at greenopia.com and at MNN, “The Pros and Cons of Commercializing Space Travel”, http://www.mnn.com/green-tech/research-innovations/stories/the-pros-and-cons-of-commercializing-space-travel, 3-8)

Further, Dinerman points out that private efforts into space have failed again and again. He refers to dozens of private start-ups that never got off the ground, let alone into space. Dinerman points to Lockheed Martin's X-33 design, which was supposed to replace the space shuttle in 1996. The design never succeeded and ultimately cost the government $912 million and Lockheed Martin $357 million. Amazon.com Chief Executive Jeff Bezos’ company Blue Origin set up the DC-X program in the early 1990s. Its suborbital test vehicle was initially successful but was destroyed in a landing accident. Dinerman claims, “The Clinton administration saw the DC-X as a Reagan/Bush legacy program, and was happy to cancel it after the accident.”

### Privatization fails Businesses aren’t held accountable

Salin 2001 (Patrick A, Professor at the Institute of Air and Space Law McGill University, Montreal, Canada, “Privatization and militarization in the space business environment,” Space Policy 17 (2001) 19}26 Online)

Private corporations have a de facto equal status to that of public space agencies. The worrying factor in the development of outer space exploitation is that \* so far \* there has been little in the way of an effective international responsibility (or liability) for wrongful acts that are committed or that bear consequences in outer space. This is the consequence of the fact that no litigation has ever been pursued on the basis of the 1972 Liability Convention or of the 1967 Outer Space Treaty, neither of which has yet been tested in terms of benefit sharing [10]. This means that, for practical purposes, the Liability Convention is unworkable. Large private corporations are on an equal footing with public bodies and behave as if they were enjoying a kind of &national' immunity that is commensurate with the size of their project. A good illustration of that observation was provided in March 1997 with the licensing of Teledesic Corp. by the US Federal Communications Commission (FCC), after intense diplomatic pressure had been exercised by the US delegation during WARC- 95.8 Contrary to its actions over much smaller projects, the FCC did not check any of Teledesic's technical or financial parameters, nor did it even impose an agenda for a project of the magnitude of close to 1000 satellites, according to its original plan, i.e. more than three times the total number of US civilian satellites that were in outer space at that time. Since then, this project has been scaled down two or three times and we are not even sure that it will ever be launched. So far, the fully licensed Teledesic project is nothing more than a huge &paper satellite' system, while the competing SkyBridge project still awaits FCC authorization in order to be operated over North America as part of its global coverage of the Earth. That shows there is always a *national state* that backs up a satellite operator \* public or private \* that is active in Outer Space at a *global scale*. Here we have a paradox consisting in having &national' regulators that license &global' operators, thanks to technology. This paradox fully explains the difficulties that global operators are facing in their relationship with other national authorities [11]. This is inevitable as long as there is no such thing as a World Space Organization under which global satellite operators must be registered and to which they must be liable. The ITU does not provide such a commitment because it is only a technical organization; we may say that global satellite systems have no accountability towards the international community and, even worse, behave by taking into account the ITU's own weaknesses.9 Reforms have been proposed in order to restructure the ITU organization [12}14]. But others think it is better to keep things as they are, with outer space being exploited almost like a lawless &wild outer space', with minimal supervision, under benevolent home state licensing and passive ITU registration. If this situation remains unchanged, no doubt such private operators will inevitably drag their licensing state to the forefront. Unfortunately, in outer space we won't talk about oil spills, but we may in the future see satellite explosions, or satellites colliding with one another, or we may simply notice malfunctions causing a satellite to cease functioning properly, sometimes without being able to really identify the cause of the malfunction or of the incident [15].10 And what about a nuclear accident in outer space?

### Corporations wont get involved- not ability to profit deters

Hearsey 2008 (Christopher M. Graduate Student, The American University, Department of Justice, Law & Society The American University, Washington, A Review Of Challenges To Corporate Expansion Into Outer Space http://www.astrosociology.org/Library/PDF/Hearsey\_CorporateExpansion.pdf)

Corporations are well established in outer space. Many private space firms develop, build and launch vehicles and payloads, while working closely with governments. Nevertheless, many corporations are confined to specialized sectors of space commerce due to the economically prohibitive nature of human spaceflight. However, legal challenges will present the major obstacle to corporations operating in outer space. Outer space is a high risk environment and given the dangerousness of such economic activity corporations will not be allowed to operate without some rules or regulation. Moreover, without the ability to profit, corporations will lose their incentive to engage in outer space commerce. Therefore, outer space law must balance corporate and public interests to ensure safety, equity and market efficiency. In turn, the shape of future civilization in outer space will depend on how national and international law develops over time in response to the pressures of corporate expansion. This paper thus seeks to perform two tasks: first, to critically review the major legal challenges facing corporate expansion into outer space, particularly United States and international space law; and second, provide an evaluation of “laissez-faire” proposals for human expansion into outer space and their impact on future space society.

## ----Ext. Fails - No Property Rights

### Lack of property rights regime prevents private investment.

Aldridge. et al, 2004 (Edward Jr Under Secretary for Acquisition, Technology, and Logistics, at the Department of Defense, June, “A Journey to Inspire, Innovate, and Discover,” Report of the President’s Commission on Implementation of United States Space Exploration Policy, http://www.nasa.gov/pdf/60736main\_M2M\_report\_small.pdf)

Because of this treaty regime, the legal status of a hypothetical private company engaged in making products from space resources is uncertain. Potentially, this uncertainty could strangle a nascent spacebased industry in its cradle; no company will invest millions of dollars in developing a product to which their legal claim is uncertain. The issue of private property rights in space is a complex one involving national and international legal issues. However, it is imperative that these issues be recognized and addressed at an early stage in the implementation of the vision, otherwise there will be little significant private sector activity associated with the development of space resources, one of our key goals.

### Property rights key- Privatization doesn’t work because people don’t have ownership

Vitale 2009 (Avv. Salvatore “COMMERCIAL OUTER SPACE ACTIVITIES” Libera Università Internazionale degli Studi Sociali may 20th http://eprints.luiss.it/78/1/vitale-20090520.pdf)

The fact is that the lack of an adequate protection of property rights truly prevent the potential investors from obtaining adequate funds, hiding the protection of the relevant investments and depriving them of the assurance that they can appropriate income from their investment. In other words, the absence of whatever sovereignty in space, compromises the ability to make profits from private investment, since the private sector will not undertake the risk to develop the technology and invest the resources if it cannot be assured the benefits of its labor.

## Privatization Links to NB

### The CP links to coercion – continuing to exert government control over the private sector means it doesn’t allow true commercial freedom.

Sterner, 2010 [Eric, national security and aerospace consultant, has held senior Congressional staff positions as the lead Professional Staff Member for defense policy on the House Armed Services Committee and as Professional Staff Member and Staff Director for the House Science Committee’s Subcommittee on Space and Aeronautics, served in the Office of the Secretary of Defense and as Associate Deputy Administrator for Policy and Planning at NASA, served as Vice President for Federal Services at TerreStar Networks Inc., and as a national security analyst at JAYCOR and National Security Research Inc., Marshall Institute, April, “Worthy of a Great Nation? NASA’s Change of Strategic Direction” http://www.marshall.org/pdf/materials/798.pdf]

11 Human Spaceflight: Commerce vs. Outsourcing The administration’s plans may not constitute commercial human spaceflight activities as they would be conventionally defined, but they may lead to new relationship between the government and industry, in which the government outsources heretofore government functions to the private sector in the expectation that the private sector can perform those functions more cost-effectively. There is precedent for this approach. In the 1990s, NASA outsourced many shuttle processing functions to the United Space Alliance, a company expressly created for processing the shuttle and supporting shuttle operations. Similarly, the U.S. Air Force structured its expendable launch vehicle into a customer-service provider relationship with the United Launch Alliance, a company expressly created for the process of building and launching the Evolved Expendable Launch Vehicles. While such a relationship can create greater opportunities for commercialization, it is not truly commercial in the sense of NSPD-3. Government controls final decisions about each program and remains the dominant customer and ultimate source of capital, bringing with it the distorting effects of a monopsonistic market. Additionally, such an approach risks the general loss of government skills and knowledge, particularly in systems integration, which results in government becoming a poor buyer of such goods and services. Should the administration’s approach evolve into this outsourcing model, policymakers will have to tread carefully to balance their obligations to ensure that the taxpayers get the most value for each dollar spent and their desires to maximize the potential for a truly commercial market to evolve.

## Privatization Bad- Weaponization

### Privatization causes weaponization of space

Salin 2001 (Patrick A, Professor at the Institute of Air and Space Law McGill University, Montreal, Canada, “Privatization and militarization in the space business environment,” Space Policy 17 (2001) 19}26 Online)

Outer Space only knows national flags, so that the increasing presence of private entities will inevitably lead to raising protection issues, diplomatic and military, paving the way for the militarization issue. Private corporations also act as de facto ambassadors of spacefaring nations, and private assets in space do not exist in their capacity as international objects (which they are, just like astronauts are to be regarded `as envoys of mankinda as per Art. V of the 1967 Outer Space Treaty). This means that private satellites are objects moving freely in an open domain that forms part of the common heritage of mankind, a *res communis* environment, with voices advocating the discarding of a bygone vision of Outer Space [16,17].11 This is a reminder of the dreadnought theory of the early twentieth century, with its right of passage. However, in our case, the right of passage is being transformed into a right of stay, including new practices that could be revealed as pernicious in the long run [18].12 This is why some nations may abruptly intervene at any time if they consider their national interest, as vested in these flying birds, to be in jeopardy. Since we are in both a highly competitive and a strategically important environment, watchful nations may also intervene in advance, in order to foster their own national interest and secure strongholds regarding other nations they consider to be foes, or simply rivals. Very seldom do nations intervene in order to impose sanctions on those of their nationals active in space. The most recent (and rare) example confirming this observation is the cancellation last June by the FCC of the licenses it had granted to three US satellite operators.13 These were participants in the first round of 14 Ka-band systems, licensed in May 1997. These cancellations have raised protests, especially from PanAmSat, even though the FCC order clearly explained how each of the three operators did not abide by the construction deadlines and jeopardized the conditional license they had been granted. So, were there grounds for a protest? Although the FCC's action had one precedent in the recent past, it is not a practice and we welcome seeing the FCC take a "rm stance, in tune with the USA's obligations under ITU regulations [19].

### Commercial development of space leads to militarization

Salin 2001 (Patrick A, Professor at the Institute of Air and Space Law McGill University, Montreal, Canada, “Privatization and militarization in the space business environment,” Space Policy 17 (2001) 19}26 Online)

We have tried to underline the close connection that exists between privatization and militarization, which is completed by a connection between militarization and exacerbated commercial competition. Intentionally, we did not touch on cooperation programs in order to underline the very real risks that naked competition can entail. We believe that many commercial space developments could be a lead to further military deployment by the nation fostering such commercial development. How can the proposition that one nation can have a greater interest in outer space than any other nation be sustained? It is still possible to slow down \* or redirect \* the irrepressible rush towards a substantial militarization and weaponization of outer space, especially in low-Earth orbits, in total contradiction of the words and spirit of the Outer Space treaties. Is cooperation the answer? Certainly, but cooperation as the result of forced political or industrial partnership is not an objective. The illustration provided by the ISS venture remains incomplete, with its spots of national sovereignty within the station itself, its complex patent dispositions and its features as an industrial partnership [44}46]. Beyond the whole ISS venture, one should really question the &need' to rush into deep space projects, while ongoing and urgent development issues still plague three-quarters of humanity on Earth. Cooperation works if it is accompanied by some dose of devolution of power to a central &a-national' authority *and* is geared towards &real' needs [47]. For example, in the wake of Unispace III, proposals to consider Earth observation as a public good vs. Earth observation as a commercial venture should be explored further and given much more attention than they are now [48].

## Privatization Bad- International Law

### Privatization of space violates international law- collapses the system

Hearsey 2008 (Christopher M. Graduate Student, The American University, Department of Justice, Law & Society The American University, Washington, A Review Of Challenges To Corporate Expansion Into Outer Space http://www.astrosociology.org/Library/PDF/Hearsey\_CorporateExpansion.pdf)

Every state has a different view of how title to property is acquired and how property should be distributed and used once title is created. Moreover, a state cannot act unilaterally to appropriate territory or resources at the international level without violating international peace and security. A charter system or private annexation would violate more than the Outer Space Treaty, it would violate general principles of international law that has a foundation in over seventy years of international jurisprudence. In 1928, the Permanent Court of Arbitration in The Hague, Netherlands, decided a territorial dispute between the United States and the Netherlands.29 The question was whether the Island of Palmas (Miangas), in its entirety, was part of the territory of the United States or the Netherlands. The Treaty of Paris (1898) ended the Spanish- American War and transferred title for the Island of Palmas to the United States from Spain. However, the Netherlands claimed the island was not maintained by nor a part of Spain, and therefore Spain had no right to transfer title to the United States. The Court found in favor of the Netherlands. While the Court acknowledged Spain’s right to acquire the island because it was deemed terra nullius in the fifteenth century, the Spanish title was deemed inchoate, i.e. it was incomplete.‡‡‡‡‡‡‡‡‡‡‡‡‡ The Court argued that for a state to maintain initial title from discovery, a state must exercise authority either by planting a flag or having a continual presence on the island. The Court ruled Spain did not exercise authority over the island after making an initial claim after discovery. Therefore, since the Netherland’s had exercised authority over the island since 1677, they had maintained title. The Island of Palmas case established three general principles to territorial acquisition. First, title based on contiguity has no standing in international law. Second, title by state discovery is only an inchoate title. Third, if additional states exercise continuous and actual authority, and the discovering state does not contest additional claims, provided in good faith and publicly announced, then the claim by the state that exercises authority is greater than a title based on mere discovery. It is important to note that states are the primary actors in territorial acquisition. Individuals do not have rights of territorial acquisition at the international level since they cannot independently establish title. Hence, Mr. Hope’s claim to Eros is unjustified, illegal and without merit. Therefore, corporations desiring to acquire any natural object beyond Earth cannot independently establish title because it will require the extension of state sovereignty. Of course, extension of state sovereignty is a violation of the res communis principle and the Outer Space Treaty.

### International law is essential to avert planetary extinction

Malaysian Medical Association, 10-6-02 “11TH SEPTEMBER - DAY OF REMEMBRANCE,” http://www.mma.org.my/current\_topic/sept.htm

Our world is increasingly interdependent and the repercussions of the actions of states, non-state actors and individuals transcend national boundaries. Weapons of mass destruction, landmines, small arms and environmental damage have global consequences, whether they be deadly armed conflict, nuclear testing or climate change from global warming. The risk of nuclear war continues to threaten human survival. The casualties resulting from even a single explosion would overwhelm the medical facilities in any city in the world. The use of nuclear weapons is morally indefensible, and the International Court of Justice has declared their use and threatened use illegal. Yet, nuclear weapons remain part of the military strategy of many nations. Nuclear war must be prevented. Nuclear weapons must be eliminated. Ongoing violations of the United Nations Charter and international humanitarian and human rights law and increasing poverty and preventable disease continue to fuel violence. World military expenditure, estimated at US$839 billion in 2001, prevents governments from meeting the social needs of their citizens and the global proliferation of armaments has caused unspeakable carnage. We call on all governments to place their foreign and domestic policies and their behaviour under the scrutiny of international law and international institutions. Each government must take primary responsibility for ending its own contribution to the cycle of violence. As citizens, we are expected to abide by the law. We expect no less from governments. This is a necessary part of honouring the lives of so many men, women and children whose deaths are commemorate. At a time when global problems should be solved by cooperating and complying with multilateral legally-binding treaties, and by embracing the rule of law as valuable instruments for building common security and safe-guarding the long-term, collective interests of humanity, there are unmistable signs that powerful states are taking unilateral action, setting aside international treaties, and undermining international law. The principle of the rule of law implies that even the most powerful must comply with the law, even if it is difficult or costly or when superior economic, military and diplomatic power may seem to make compliance unnecessary. The destruction of the symbols of American economic power and military might on 11th September is a salutary reminder that military power, including the possession of nuclear weapons, does not deter terrorists or confer security or invulnerability. It has prompted the Bush administration to declare "war on terror" and convinced it that a military response is the best way to fight terrorism on a global scale, without considering alternative, more effective ways of combating terrorism, such as addressing the root causes of terrorism. The greatest betrayal of those who died on 11th September 2001 would be to not recognise that there are non-violent ways of resolving conflict. This is a difficult, uncertain path to take, whereas violence and war are easy, predictable options. The lesson of 11th September is that our collective survival depends upon forging cooperative, just and equitable relationships with each other; in rejecting violence and war; and in pursuing non-violent resolutions to conflict. The alternative is a world perpetually divided, continually at war, and possibly destroying itself through environmental degradation or the use of weapons of mass destruction.

## ----Ext. International Law

### Privatization kills international law.

ABA Journal ’09 – American Bar Association- (7/20/09, American Bar Association, “Revising the Outer Space Treaty”, Revising the Outer Space Treaty)

It's not at all clear that the Outer Space Treaty as currently fashioned is adequate to deal with private exploitation of space. The ABA Journal explains that: In viewing space as the province of mankind, the Outer Space Treaty borrows principles from customary maritime law, which guarantees peaceful passage through navigable waters by ships of all nations. But in application, the Outer Space Treaty is more similar to the Antarctic Treaty System, a series of international agreements that call for cooperative management of Antarctica as a nonmilitarized environment and put off claims of sovereignty for an indefinite period. But as the prospects for commercial ventures in space increase, it will be necessary to address the issue of who will be allowed to profit from the fruits of those ventures, say lawyers in the field. “The current system works if nations accept a détente in space and all the resources are only used for the benefit of all mankind,” Keefe says. “If that’s the case, then there will never be commercialization of space and there will be little benefit for mankind. I know that’s a cynical capitalist viewpoint, but I think if everyone is afraid to launch a venture because they might not be allowed to profit from it, then nothing will happen.”

## Privatization Bad- Jobs/Competitiveness

### Shift to private leadership tanks NASA jobs – key to US competitiveness.

Bacchus 2010,( James former member of congress, 2/9/, “Obama's Plan for NASA and Reaffirming Our Commitment to Space Exploration,” Huffington Post, http://www.huffingtonpost.com/james-bacchus/obamas-plan-for-nasa-and\_b\_455074.html)

The retirement of the shuttle fleet at yearend will jeopardize 7,000 jobs at the Kennedy Space Center and all along the "Space Coast" of Central Florida in my former Congressional district. We must do all we can to save those jobs. For me, the simple fact that many of those jobs are held by my friends and my former constituents is reason enough to do everything possible to save them. But much more is at stake for our entire country. Overall U.S. industrial capacity fell by an estimated one percent in 2009 -- the largest yearly decline ever. Goods-producing businesses shed more than 2.3 million jobs last year. At such a time, do we really want to throw away the critical mass and the critical skills of thousands of space workers in Florida, Texas, California, and elsewhere in this country whose labors have secured and sustained America's comparative advantage in what will surely be one of the key global industries of the twenty-first century?

### Competitiveness key to maintain a military that discourages any challengers

Barry Posen (Political Science Professor at MIT) Summer 2003 “Command of the Commons", International Security, Vol. 28, Issue 1, Pg. 5

What are the sources of U.S. command of the commons? One obvious source is the general U.S. superiority in economic resources. According to the Central Intelligence Agency, the United States produces 23 percent of gross world product (GWP); it has more than twice as many resources under the control of a single political authority as either of the next two most potent economic powers -- Japan with 7 percent of GWP and China with 10 percent. With 3.5 percent of U.S. gross domestic product devoted to defense (nearly 1 percent of GWP), the U.S. military can undertake larger projects than any other military in the world. The specific weapons and platforms needed to secure and exploit command of the commons are expensive. They depend on a huge scientific and industrial base for their design and production. In 2001 the U.S. Department of Defense budgeted nearly as much money for military research and development as Germany and France together budgeted for their entire military efforts. The military exploitation of information technology, a field where the U.S. military excels, is a key element. The systems needed to command the commons require significant skills in systems integration and the management of large-scale industrial projects, where the U.S. defense industry excels. The development of new weapons and tactics depends on decades of expensively accumulated technological and tactical experience embodied in the institutional memory of public and private military research and development organizations.1Finally, the military personnel needed to run these systems are among the most highly skilled and highly trained in the world. The barriers to entry to a state seeking the military capabilities to fight for the commons are very high.

### Extinction

Khalilzad, Rand Corporation 95 (Zalmay Khalilzad, Spring 1995. RAND Corporation. “Losing the Moment?” The Washington Quarterly 18.2, Lexis.)

Under the third option, the United States would seek to retain global leadership and to preclude the rise of a global rival or a return to multipolarity for the indefinite future. On balance, this is the best long-term guiding principle and vision. Such a vision is desirable not as an end in itself, but because a world in which the United States exercises leadership would have tremendous advantages. First, the global environment would be more open and more receptive to American values -- democracy, free markets, and the rule of law. Second, such a world would have a better chance of dealing cooperatively with the world's major problems, such as nuclear proliferation, threats of regional hegemony by renegade states, and low-level conflicts. Finally, U.S. leadership would help preclude the rise of another hostile global rival, enabling the United States and the world to avoid another global cold or hot war and all the attendant dangers, including a global nuclear exchange. U.S. leadership would therefore be more conducive to global stability than a bipolar or a multipolar balance of power system.