

Space Tourism: Opening the Space Economy

Position Statement

Burt Rutan's SpaceShipOne, currently pursuing the Ansari X-Prize, is helping open a new frontier of economic development. In cooperation with Richard Branson and other entrepreneurs, Rutan will create a new market niche, which will appeal to extreme sports fans and wealthy travelers alike. Like the aircraft industry in the last century, money from these early adventurers will in turn fund new technologies and vehicles to meet the needs of a growing industry. As the space tourism industry grows, travel will become better, more efficient, and more affordable to more customers. The National Space Society also believes that space tourism will provide opportunities to advance the aerospace disciplines, reduce the cost of all space activities (including exploration and settlement), and enable the United States to remain a pre-eminent center of science and technology.

The Potential Space Tourism Market

The earth-based tourism industry is a trillion-dollar industry. The National Aerospace Laboratory in Japan surveyed citizens in Japan, Canada, the United States, and Europe throughout the 1990s to gauge their interest in space tourism. These surveys confirmed wide personal interest in space tourism (60 to 80%, depending on the country), and a willingness to spend upwards of a month's salary just to get into space once.¹ Clearly this is not a "far out" scheme without connection to earthly reality—space tourism will expand an already thriving industry into a new and potentially very lucrative arena.

There are already potential customers space tourism marketers can target. These markets include:

Extreme Sports Fans

From hang gliding to snowboarding to skateboarding to parachuting to skiing, "extreme" sports have attracted a whole new generation of thrill seekers. Some space tourists might enjoy the risks of flying on new types of spacecraft that no one else has ever flown on before. Others will seek the sensations of both high acceleration and zero gravity—much like roller coaster enthusiasts. Risk taking and danger will not discourage these hardy travelers—it will become part of the attraction! Consider the fact that 3.5 to 4 million Americans experience sports injuries every year, over 100,000 of them from skateboarding alone²; and yet skateboarding, surfing, snowboarding, skiing, skateboarding, parachuting, and the "X-Games" remain popular.

Wealthy Leisure Travelers

While some will seek out space tourism for the thrill of it, the fact remains that this activity will remain expensive for some time, with single tickets estimated to cost \$25,000 to \$100,000. At that price, one might purchase a two-week vacation to Walt Disney World, a first-class around-the-world cruise, or membership dues in an exclusive resort community. Obviously such vacations are very expensive, but they are not beyond the means of people who are willing to pay the price. And what a destination! Space itself—followed by an eventual orbital hotel—could be the ultimate getaway in the next decade.

¹ Berinstein, Paula. *Making Space Happen*. Plexus Publishing, Inc. Medford, NJ, 2002.

² U.S. Consumer Product Safety Commission, "Skateboards," Publication #93, Washington, DC, 2002.

Developing the New Transportation Frontier

The commercial space market has existed since 1970. Today the world market for satellite-based services—including telecommunications, television, global positioning systems, and earth observation (weather, environmental, search and rescue)—is valued at nearly \$90 billion.³ The problem with the commercial space market so far is that it hasn't been large enough to attract private investment in the technologies needed to lower the cost of access to space. Space tourism holds great promise as an economic “driver” to more frequent flights, leading to market competition to lower launch costs, which will in turn attract other customers to the space market.

Consumer demand for space launch services would require aerospace companies to develop reusable, highly reliable spacecraft. This demand for reusable spacecraft will push our design and manufacturing technology to new levels, and our nation's best and brightest individuals will be drawn to the challenge of building this new frontier. Private sector space technology research for commercial flight operations will improve spaceflight capabilities; develop spinoff technologies which could benefit NASA and other government space endeavors as well as non-space activities; and help maintain our nation's technological pre-eminence in science and technology. Reusable, reliable spacecraft can also reduce the current costs of satellites, on which we depend for communications, entertainment, weather forecasting, environmental management, search and rescue operations, and national security.

An investment in space technology is necessary if the United States is to remain a nexus of scientific and technological creativity. U.S. market share of commercial space launches has dropped from 100% in the early 1970s to around 30% today.⁴ That percentage will continue to drop as Europe, Russia, Japan, and China develop their own rocket systems. The engineers and scientists who sent Americans to the Moon are retiring or, sadly, dying off. The United States has lost over 600,000 scientific and technical jobs in the past 13 years.⁵ NASA's over-60 staff outnumbers its under-30 staff three to one,⁶ and there are no signs of replacement on the horizon. The number of American-born students taking degrees in aerospace and related technologies has been steadily decreasing since the 1980s. An open frontier with opportunities for all can offer the best incentive to our young people to reach for the stars.

Risks and the Regulatory Environment

The government has a natural interest in regulating this new industry, as any other industry. But the largest mistake the government could make, and the quickest way to strangle the space tourism industry before it is off the ground, would be to apply the sort of stringent safety standards that are only appropriate to a more mature transportation technology. Even today, more than a hundred years after the first automobiles, motor vehicle accidents are the leading

³ Satellite Industry Association. “Satellite Industry Statistics 2002,”

http://www.sia.org/industry_overview/2002%20Satellite%20Industry%20Statistics.pdf

⁴ Stine, G. Harry. *Halfway to Anywhere*. M. Evans and Company, Inc. New York, 1996.

⁵ Rohrabacher, Dana, Rep. “The Aerospace Commission Report and the NASA Workforce,” *Hearing Before the Committee on Science*. House of Representatives, 108th Congress, First Session, March 12, 2003, Serial No. 108-7, http://commdocs.house.gov/committees/science/hsy85517.000/hsy85517_of.htm.

⁶ “The Aerospace Commission Report and the NASA Workforce, Recommendation 7.” *Hearing Before the Committee on Science*. House of Representatives, 108th Congress, First Session, March 12, 2003, Serial No. 108-7, http://commdocs.house.gov/committees/science/hsy85517.000/hsy85517_of.htm.

⁷ Subramanian, Rajesh. “Motor Vehicle Traffic Crashes as a Leading Cause of Death in the United States, 2001” DOT HS 809 685 http://www.drivesaferamerica.org/pdfs/crashes_ranked.pdf

⁸ “Boating Basics.” <http://www.boatus.com/onlinecourse/documents/BOATINGBASICS.html>

cause of death in the United States for persons between the ages of four and thirty-three.⁷ Boats are one of the oldest forms of transportation on earth, yet in each year since 1961 (the first year in which statistics were kept), boating accidents have claimed the lives of more than 800 people per year in the U.S. alone.⁸ If such mature transportation technologies are not completely safe, it would be folly to expect that space transportation, still in its infancy, will be without accidents and deaths. There will be no substitute for experience, with all its painful lessons, to make space transportation safer over time.

Meanwhile, an appropriate regulatory environment for the fledgling space tourist industry would allow tourists to fly at their own risk, subject to informed consent concerning the risks of these new vehicles. Safety concerns for people on the ground are manageable with appropriate safety zones established around the launch sites.

Conclusion

Clearly the space tourism market exists, and the time has come to exploit it. It is time for the private sector to take the lead in expanding the frontiers of human possibility and for government to return to its role as incubator of innovative technologies. We believe that private sector ingenuity applied to government research goals can revolutionize space travel and bring our nation back to its pioneering heritage of exploring new frontiers.

About NSS

The National Space Society (NSS) is an independent, international, educational, grassroots nonprofit organization dedicated to the creation of a spacefaring civilization. Founded in 1974 by Wernher von Braun, NSS is widely acknowledged as the preeminent citizen's voice on space.

The National Space Society's vision is people living and working in thriving communities beyond the Earth. NSS members promote change in social, technical, economic, and political conditions to advance the day when people will live and work in space.