

# Commercial Space Travel Will Become Increasingly Common

Katherine Mangu-Ward, "Space Travel for Fun and Profit: The Private Space Industry Soars Higher by Lowering Its Sights," *Reason*, vol. 38, January 2007, p. 38. Copyright 2007 by Reason Foundation, 3415 S. Sepulveda Blvd., Suite 400, Los Angeles, CA 90034, [www.reason.com](http://www.reason.com). Reproduced by permission.

"Scads of private suborbital space vehicles will be popping up all over the planet and breaking out of Earth's atmosphere."

The government's monopoly over space is coming to an end, claims Katherine Mangu-Ward in the following viewpoint. Tech millionaires are filling the gap and have set their sights on private space travel, she reports. Private space travel companies will first take tourists on suborbital tours—about sixty-two miles above sea level, she explains. However, she asserts, space entrepreneurs plan to expand the industry to the moon and beyond. While the first space tourists will be adventurers, space entrepreneurs ultimately hope to gain a broad range of consumers, she notes. Mangu-Ward is an associate editor for *Reason* magazine.

As you read, consider the following questions:

In Mangu-Ward's opinion, who is the biggest name in the NewSpace business?

What does the author claim led to the end of NASA's monopoly on space?

How much does the Federal Aviation Administration's Office of Commercial Space Transportation estimate the space industry will be worth in 2026?

Barbed wire surrounded the Bigelow Aerospace compound, set in a stretch of dry, rockstrewn Nevada desert. Las Vegas glittered in the distance, but otherwise the vista had the desolate look of a lunar landscape, with one difference: The summer heat was oppressive—enough to make you long for the cool vacuum of outer space.

The van full of visiting space geeks didn't mind the harsh conditions. They happily left the air-conditioned glamour of Vegas' Flamingo Hotel and Casino, where the cream of the private space industry had gathered for the NewSpace 2006 conference, to spend a few hours at Bigelow's warehouse and mission control center. They couldn't have been more excited if the van had been on its way to a Star Trek-themed strip club.

## **The Launch of Genesis I**

Earlier in the week, Bigelow Aerospace had successfully launched Genesis I into orbit. A small pod that inflates once aloft, Genesis I is a prototype for cheap, livable, interconnecting rooms for commercial use in space. The first in a series of launches scheduled every six months for the next two and a half years, it marked the beginning of what could be the first privately funded space station.

Robert Bigelow, president and CEO of the company, made his fortune with the hotel chain Budget Suites of America and other real estate ventures. He has a logical goal in mind: an orbital hotel. Similar in concept to the International Space Station but much larger, Bigelow's space-habitat project uses a cast-off National Aeronautics and Space Administration (NASA) system of inflatable pods. He bought the rights to the technology in 2001, when he read that NASA was scrapping the promising system after many years and many more millions of dollars of development. Bigelow, 62, has since sunk \$75 million into the project, with a promise of \$425 million more to come.

Stepping inside Bigelow Aerospace's cool, antiseptic, heavily guarded warehouse was like walking into a science fiction novel. Enormous models and pieces of space-bound machinery were strewn about like forgotten Lego blocks over tens of thousands of square feet. The delegation from the NewSpace conference shuffled along with the quiet awe usually reserved for holy places. At one point, a member of Bigelow's mission control team looked at his watch and said, "Actually, Genesis should be passing overhead right now." Everyone in the room looked up, instinctively, as though the module would be visible. Then they grinned sheepishly at each other.

The grins reflected something more than embarrassment at having fallen for an old gag. ("Hey look," someone cracked, "gullible is written on the ceiling.") The visitors were just plain happy. After years of hope and speculation, the private-sector space enthusiasts were thrilled to hear the words "its overhead right now" from one of their own.

## Suborbital Vehicles

The Genesis launch, while exciting, is peanuts compared to what's coming.... Besides the ever-larger Bigelow launches, scads of private suborbital space vehicles will be popping up all over the planet and breaking out of Earth's atmosphere, about 62 miles above sea level.

Bigelow and his ilk are part of an industry that calls itself NewSpace, though some prefer the techy alt.space and others favor the touchy-feely personal space. Since the late '90s, they've been coalescing into clubs, nonprofits, and other associations. In the bad old days, this crowd got together mostly to bitch about NASA and its evil stepchildren, Lockheed and Boeing. But while NASA remains a topic of interest, NewSpacers have passed out of their whiny adolescent phase and into industrious young adulthood. Their aspirations are appropriately modest—mostly suborbital, just a quick trip to the edge of the atmosphere. They're setting aside deep space exploration and the moon for now (though they talk a big game about what's next), opting instead for reasonable, practical, short-term goals: quick hops for tourists and other near-to-Earth fun. And instead of crying on each other's shoulders, suddenly the NewSpacers are seeing each other—and sometimes NASA—as the competition.

Thanks in part to a preponderance of tech millionaires, the NewSpace industry is picking up speed. As Bigelow has noted, "We are probably a very close cousin to the world of the Internet and the computer world—doubling every 18 months."

In addition to big-name companies like Virgin Galactic, dozens of smaller entrepreneurial ventures wait in the wings, including Armadillo Aerospace, the rocket company started by Doom and Quake programmer John Carmack. So do communications equipment manufacturers, spacesuit designers, and many other enterprises, releasing pent-up innovation and creativity as NASA's long-lived monopoly on space, or at least suborbital space, wheezes to an end.

The industry, dominated just a few years ago by a bunch of seemingly loony space cadets with big dreams, is becoming the province of respectable, hardheaded CEOs. What happened?

### Three-Hour Tours

The biggest name in the NewSpace business is the British billionaire Richard Branson. The pop entrepreneur founded the space tourism company Virgin Galactic in 2004, and he plans to be flying missions by 2008. Apparently taking a page from Gilligan's Island, Virgin will carry paying passengers on three-hour tours, complete with seven minutes of zero gravity, after just a week of preflight training. The Virgin spacecraft will be modeled on SpaceShipOne, the vehicle dreamed up by the aviation legend Burt Rutan. Rutan's spacecraft captured the privately funded Ansari X Prize in 2004 by being the first private manned ship to exit the atmosphere twice in a span of two weeks. After taking the \$10 million prize, Rutan's company, Scaled Composites, signed with Branson to build the bigger, better SpaceShipTwo. Rutan says the new ship will fly higher than the first model and carry eight people.

Branson has generated headlines for the private spaceflight industry (and himself) by accepting several \$200,000 down payments for early flights. Potential tourist-astronauts include [musician] Moby, [actress] Sigourney Weaver, Brad Pitt, [wheelchair-bound physics genius] Stephen Hawking, and Paris Hilton. In March 2005, Doug Ramsberg of Northglenn, Colorado, won a free trip on a Virgin vehicle in a company-sponsored lottery. (Perhaps he'll be one of the lucky few to witness Hawking and Hilton colliding in a brainy yet glamorous zero-g mishap.) Branson says he intends to be on the first flight of the geekily named VSS Enterprise, along with members of his family, [in early 2009]....

Branson and his peers are confining themselves to suborbital travel for now: blastoff, a few minutes of zero gravity at the edge of space, then back again. The technology to make this type of trip has been around for decades, though NewSpacers are working to make the trip exponentially cheaper, better, and faster. Bigelow's hotel-in-space project is more ambitious, on a par with the International Space Station, but also has a longer time horizon. And no one has taken serious practical steps toward a private voyage to the moon, though there has been a lot of discussion about the legal preconditions to make a moon trip attractive to entrepreneurs. For starters, it's not clear how property rights will work on the moon or on asteroids. Who is allowed to build, and where? Perhaps more important, what can be brought back to Earth and sold?

Devotees of private space travel have long blamed NASA's monopolistic behavior for their own failures. And its true NASA has done virtually nothing to encourage outside innovation over the years—despite repeated mandates to do so—while selfishly sucking up billions of dollars and all the dreams and hopes of space buffs nationwide. But when the NewSpacers lowered their sights from "infinity and beyond" to a few minutes of floating, they realized NASA couldn't really stop them from snagging a little bit of space all their own.

## **Extraterrestrial Entrepreneurs**

It was 1999 when the free market faction of the space world finally gave up on NASA. In that single year, NASA boasted two failed Mars robot missions, a mostly grounded shuttle fleet, a busted space telescope, and a semi-abandoned space station; it also aborted several pet projects, from a space plane to a planned landing on a comet's nucleus, in large part because they were politically inexpedient. Most space geeks had long ago lost hope that NASA would ever make it back to the moon, as the space agency seemed resigned to sending shuttles scooting back and forth to the International Space Station with small scientific payloads, spare parts, and the occasional astronaut. Pessimists pointed to the average age of NASA professionals, a ripe old 46, and sighed about the lack of innovation. Gone were the Apollo days, when the command was "Waste anything but time." NASA seemed happy to clunk along with its \$16 billion a year, doing what it had been doing since the 1970s: not much.

From that despair, the seeds of dozens of companies were tossed to the winds. A few promise bumper crops soon. Once the really big projects were out of the picture—Mars colonies, dinner at the Restaurant at the End of the Universe, etc.—a few guys with big money started to ask: What could be worse than NASA? We might as well try....

## Selling Space

The Vegas conference was dubbed NewSpace 2006 but could just as easily have been called "Selling Space," since pretty much everyone in the room was doing just that, in one capacity or another. As one participant noted: "A few years ago, all these guys had the names of struggling nonprofits on their nametags. Today everyone's a CEO."

For years the Space Frontier Foundation, which organized the conference, has been nagging space geeks to stop thinking like engineers and start thinking like businessmen. The trouble with engineers, apparently, is that they are naturally authoritarian. If we could just calculate everything out to the nth decimal place, they say, we could tell you the One Right Way to get to the moon or to launch a rocket. During the no-go '90s, conferences about commercial space ventures were dominated by talk of propellant, rocket design, and lunar habitation specs. "Here's the thing," warns Kevin Greene, founder of a fledgling startup called Lunar Constructors. "There is no 'optimum design' for a moon colony. This is hard for engineers to understand. This is not a libertarian tirade; there is a role for government. But don't over-design it."

Bigelow agrees with the sentiment, adding: "Whether you're building a regional shopping center mall or a 70-story office building, go out and find your anchor tenants. Don't build the whole thing from your idea of what might work."

Having shed their pocket protectors and donned pinstriped suits and silk ties—most of which, mercifully, didn't have little shooting stars or pictures of the starship Enterprise on them—NewSpace enthusiasts have grown comfortable with the language, and the indeterminacies, of business. The conference participants talked about "selling ourselves to the public," market segmentation, and strategies to fend off government regulation. Many were starting to think beyond the One Right Way to get to space and beginning to consider extra frills to offer travelers once they're up there....

The guys pitching wacky projects have one thing right, though: If the public is going to be interested, it needs to see exciting images and hear wild stories about space. Grainy footage of "One small step ..." can sustain people's interest only for so long. NASA has lost its touch at selling space, and NewSpace companies are just starting to learn the skill. Virgin Galactic has done the best job so far, with a sharp little product placement in the recent Superman movie: A Virgin Galactic-branded spaceship, possibly piloted by Branson himself, appeared in trailers for the film.

## Answering Customer Demand

Even without a totally refined message or perfect, snazzy graphics, a handful of wealthy people are ready to get suborbital. The recent, highly publicized trip to the space station by Anousheh Ansari, the entrepreneur who helped bankroll the X Prize, has kindled broad interest in personal space travel. Another female space-traveler-to-be, Reda Anderson, told NewSpace participants she didn't need more reassurance or sales pitches; she preferred the rugged appeal of the young industry. "We're not tourists here," she said. "We're not going to go up and spend time in a hotel and have a nice meal and all that kind of stuff." The first breed of space tourists and entrepreneurs will be attracted, as one conference participant noted, by the fact that space is "fresh real estate, like the Internet," room to grow and expand in an essentially lawless atmosphere (or, more precisely, no atmosphere at all).

But an industry cannot live off adventurers and libertarian dreams alone. Although the market is largely untested, a 2002 survey by the research group Futron found that interest levels were high enough to generate more than 15,000 suborbital tourists by 2021, assuming the price of a ticket comes down to about \$25,000 (in 2006 dollars). The Federal Aviation Administration's Office of Commercial Space Transportation put out a report [in February 2006] estimating the space travel industry would be worth \$1 billion a year within 20 years.

The industry is already talking about what's next if and when suborbital jaunts become commonplace. Unlike NASA, commercial space companies answer directly to customer demand, so the dream of pushing on to the moon is strong. "That's what people want—the moon," says Bigelow with a grin. "But we've got a lot of steps before we get there. It doesn't mean we're not always thinking about it, though."...

Someone will be able to make money by taking people into space on a privately developed, privately owned spaceship. They won't go very far, and they won't be gone very long. But just a few short years ago, the smartest guys in the room were content to sit around and argue better than anyone else. Now—with help from an infusion of smart, rich guys—they're fighting for success in a competitive industry with real results on the horizon.