

Lifestyle/ Travel & Leisure

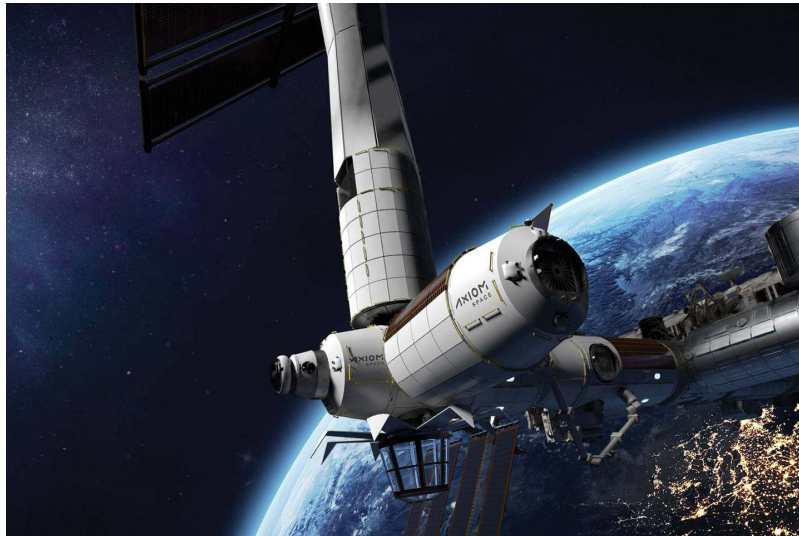
Space tourism: with Elon Musk's SpaceX sending first civilians into low-Earth orbit this year, ambitious plans are being hatched

SpaceX has sold four multimillion-dollar charter flights to space, and Virgin Galactic has begun training 600 customers for its planned space flights

Other companies plan to launch space hotels, and a balloon-like capsule for space day trips, before the decade is out. Is space tourism going mainstream?

**Delle Chan**[+ FOLLOW](#)

Published: 10:15am, 18 Apr, 2021 ▾

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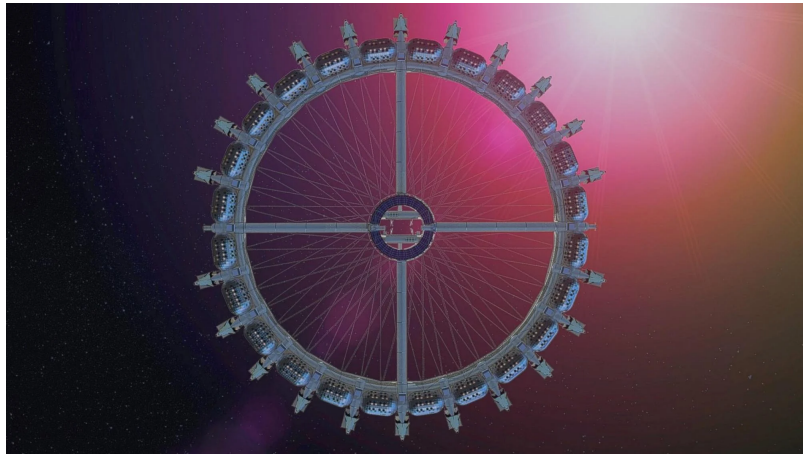
A render of AxStation, the first private space station being designed and built by Axiom Space. It is one of several space tourism projects in development. Photo: Axiom Space

Many of us fantasise about boldly going to explore the final frontier but, despite decades of blue-sky thinking, space tourism has largely remained the stuff of science fiction.

Now, though, the race for space is heating up as several aeronautical tourism projects near fruition. They promise to offer travellers an out-of-this-world experience.

In March, American start-up The Gateway Foundation announced plans to launch the first commercial space hotel by 2027. The Voyager Station will be able to accommodate up to 280 guests and 112 crew members. The 50,000 square metre (540,000 sq ft) structure, shaped like a Ferris wheel, will rotate slowly to create gravity similar to that which is experienced on the moon.

Inside, it will be less a sterile spaceship and more a swanky hotel: think plush villas and suites with en suite bathrooms, a gym and full-service restaurants and bars, although exactly how guests will dine in a low-gravity environment remains unclear.



The Voyager Station will accommodate up to 280 guests and 112 crew members. Photo: The Gateway Foundation

Houston-based Axiom Space, meanwhile, has unveiled plans for the AxStation, a commercial space station that will be open to astronauts – its own as well as others, including tourists. The structure will be built while attached to the International Space Station. All being well, by 2028 the AxStation will be ready to detach and form a free-flying space station after the ISS is decommissioned.

Facilities on board will include research and manufacturing spaces, a panoramic observatory, an airlock for spacewalks and living quarters designed by French architect Philippe Starck.



With no requisite training, clothing, or pre-launch preparation criteria, we can offer more people the chance to experience the life-changing view of Earth from space

Jane Poynter, the founder and co-CEO of Space Perspective

According to a spokesman for Axiom Space – which also plans to begin sending, in January 2022, groups of four space travellers every six months to the ISS – these quarters will be able to accommodate up to eight people, with each padded cabin containing a communications panel, handholds to facilitate movement in microgravity and a large window for widescreen cosmic views.

These are ambitious projects on what planetary scientist Jim Bell describes as “an aggressive, optimistic timescale”. He calls them vanguard projects and predicts that recreational space travel will not truly take flight until 200 years from now.

“For space tourism to really take off, it’s going to require the terrestrial service industry to make that leap into space. The hotels, restaurants, theme parks ... we need infrastructure that’s ready to accommodate visitors.”

Singaporeans in space: the start-ups powering city state’s ascent

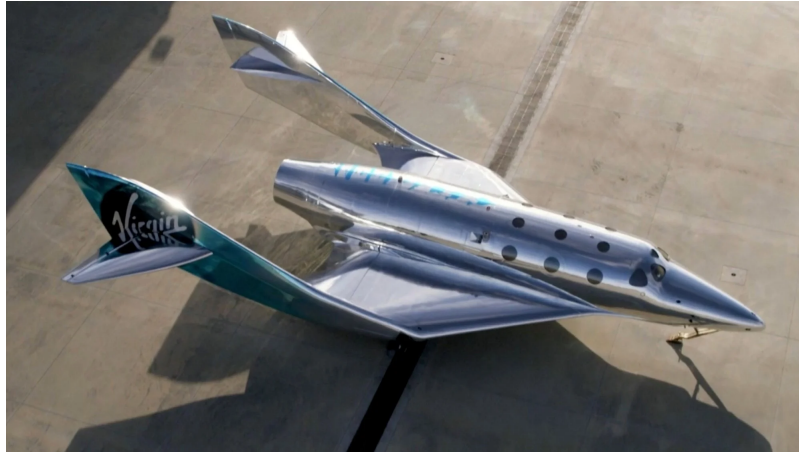
19 Nov 2020



Of course, reliable transport systems will need to be in place, too, and several companies aim to launch commercial space flights in the coming years.

American company Virgin Galactic recently [debuted its newest spacecraft, VSS Imagine](#), which is designed to whisk travellers to suborbital space. Ground testing of the spacecraft will begin soon, with glide tests planned for this summer at Virgin Galactic's facility in New Mexico, in the United States.

Although the company has conducted just two successful space flights to date – even its billionaire founder, Richard Branson, has yet to make it to space – it has reservations from more than 600 customers, each of whom has forked out US\$250,000 for their ticket and has begun training.



Virgin Galactic's new spaceship VSS Imagine. Photo: Reuters

“The oldest person I trained was 88 years old,” Glenn King, the director of space flight training at the National Aerospace Training and Research Centre, a private company that has already helped prepare nearly 400 future Virgin Galactic passengers, told Agence France-Press.

The training programme lasts for two days and includes tests in a centrifuge. This involves putting the trainee in a single-seat cockpit at the end of an arm 8 metres (25 feet) long and spinning them around to simulate gravitational force, or G force.

Virgin Galactic's biggest competitor, SpaceX, has also been busy. Elon Musk's aerospace company has already sold four multimillion-dollar charter flights, including Inspiration4, dubbed “the world's first all-civilian mission”.



SpaceX customer, Japanese billionaire Yusaku Maezawa, is looking for eight crew members for his #dearMoon project. Photo: Getty Images

Scheduled for lift-off in September this year, the three-day trip, sponsored by entrepreneur Jared Isaacman, will see the billionaire and three other people – none of whom will be professional astronauts – fly around the planet in low-Earth orbit.

Another SpaceX customer, [Japanese billionaire Yusaku Maezawa, is looking for eight crew members](#) for his #dearMoon project, a week-long expedition to the moon slated to take place in 2023.

For those who prefer day trips, Florida-based Space Perspective is designing a balloon-shaped capsule that will take travellers to the edge of space and back in just six hours.



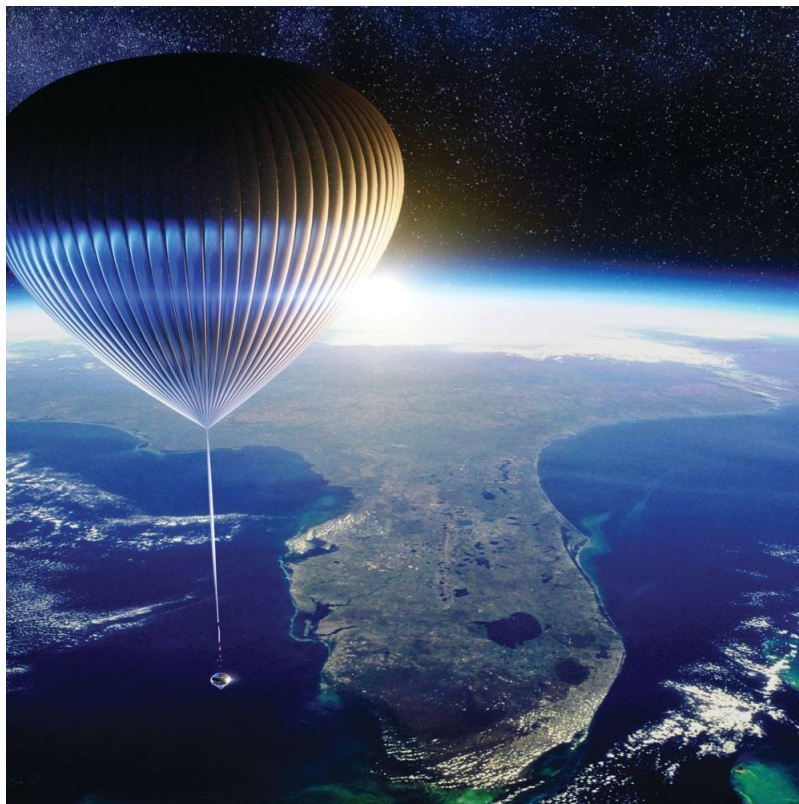
Unlike many other sectors, anything is possible in space! It is one of the few places where the world is truly testing the limits of science and technology, with surprising success

Lynette Tan, chief executive of the Singapore Space & Technology

The Neptune, which is slated to launch in 2024, will accommodate up to eight passengers and a pilot. It will be able to reach the upper limit of the Earth's atmosphere, rising to a height of around 30,000 metres – roughly three times higher than a commercial airliner.

“With no requisite training, clothing, or pre-launch preparation criteria, we can offer more people the chance to experience the life-changing view of Earth from space,” declares Jane Poynter, the founder and co-CEO of Space Perspective. “A flight with us will be as simple as boarding a plane.” However, each round trip will cost a cool US\$125,000, with seat reservations opening this year.

As these projects demonstrate, recreational space travel will be prohibitively expensive for all but the very wealthy, at least in the early days.



An illustration of Space Perspective's balloon-capsule Spaceship Neptune. Photo: Space Perspective

“Some of the key questions that the space travel industry is grappling with are around what novel ways existing technology can be repurposed to make space travel more cost-efficient, and in as short a time as possible,” says Lynette Tan, chief executive of the Singapore Space & Technology, an organisation that seeks to raise awareness and adoption of space-related technologies.

To this end, the Singapore-based company hosts global conferences and organises education and outreach programmes.

“Many industry experts have talked about lowering the cost of space travel as more players come on board, but that will only happen when researchers, scientists, government stakeholders, venture capitalists and the private sector come together,” says Tan. “The regulatory, commercial and technological aspects all need to be joined up.”

Eye-watering ticket prices aside, civilians must also meet health requirements to enter space. According to guidelines from the US Federal Aviation Administration, those with medical conditions such as coronary heart disease, epilepsy, diabetes mellitus (requiring hypoglycaemic medication) and bipolar disorder will be disqualified.

In the case of Isaacman's Inspiration4 flight, applicants had to be under 1.98 metres (6 feet 6 inches) tall, weigh less than 113kg (250 pounds) and pass physical and psychological tests.



Sunrise over Planet Earth. Photo: Getty Images

Then there are environmental concerns to consider. “Environmental factors are less important in the short run or for singular space missions, but I expect much more focus on sustainability in the long-term development of mass space tourism, similar to what we’ve seen in the aviation industry,” says Robert Goehlich, a space tourism expert and an adjunct assistant professor at Embry-Riddle Aeronautical University, in Florida.

In a research paper, “Space Tourism: Hurdles and Hopes”, Goehlich notes that the cumulative energy consumption of 100,000 space passengers would still be relatively small compared with that of the billions of air passengers who take to the skies every year.

“However, space vehicles are the only major emitters at altitudes above those reached by airline traffic. These emissions in the sensitive upper atmosphere are not negligible, and neither is the local pollution at spaceports,” he explains.

Despite these challenges, experts are optimistic about the future of space tourism and the opportunities it presents. According to Swiss bank UBS, the market will be worth US\$3 billion by 2030.

“Unlike many other sectors, anything is possible in space! It is one of the few places where the world is truly testing the limits of science and technology, with surprising success,” says Tan. “Space is the future playground for mankind, so space tourism is going to be a big part of that reality.”

