

How commercial spaceflight makes a profit

October 2 2014, by Elizabeth Howell



First look inside SpaceX Dragon V2 next generation astronaut spacecraft unveiled by CEO Elon Musk on May 29, 2014. Credit: Robert Fisher/AmericaSpace

There's a big difference in thinking between governments and the private companies that participate in space. While entities such as NASA can work on understanding basic human health or exploring the universe for the sake of a greater understanding, companies have a limitation: they need to eventually make a profit.

This was brought up in a human spaceflight discussion at the International Astronautical Congress today (Oct. 1), which included participants from agencies and companies alike. Below are some concepts for how [private companies](#) in the space world today are making their money.

"We have in space a movement towards more privatization ... and also for more use of space activities in general and human space activity in the future by individual private persons," said Johann Dietrich Worner, chairman of the executive board of DLR (Germany's space agency), in the panel.

"You can imagine that even for the upcoming 10 to 20 to 30 years, the public funding is the basic funding for [space] activities while in other areas, we are already seeing that private money is doing its work if you look to communication and if you look to other activities, like for instance, research in space."

But commercial spaceflight is already taking place, as some of these examples show.

Commercial crew

The two successful companies in NASA's latest round of commercial contracts—SpaceX (Dragon) and Boeing (CST-100)—are each receiving government money to develop their private space taxis. The companies are responsible for meeting certain milestones to receive funds. There is quite the element of risk involved because the commercial contracts are only given out in stages; you could be partway through developing the spacecraft and then discover you will not be awarded one for the next round. This is what happened to Sierra Nevada Corp., whose Dream Chaser concept did not receive more money in the announcement last month. The company has filed a legal challenge in response.

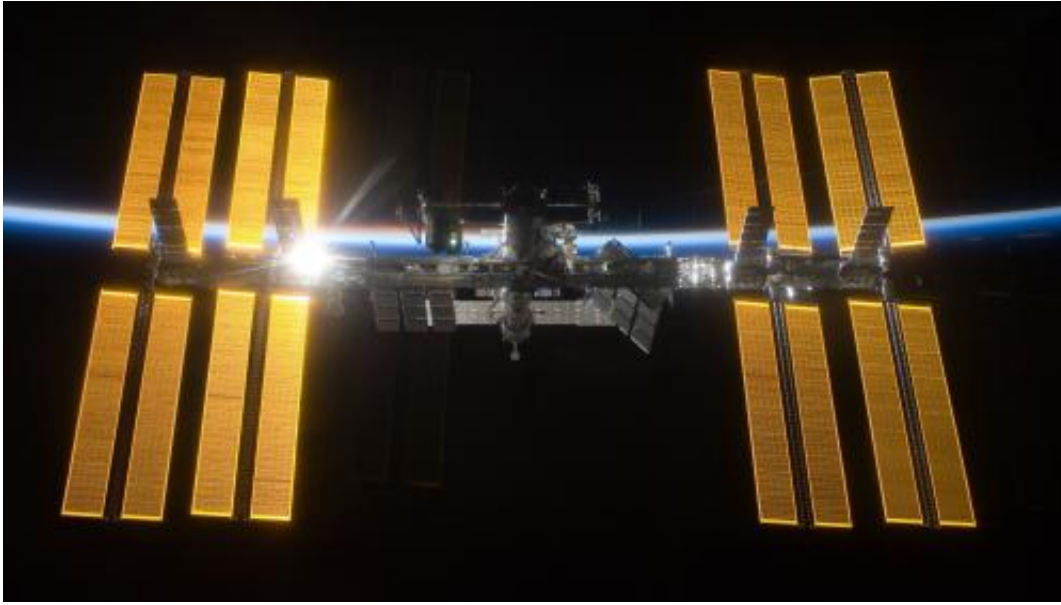


Artist concept of the ARKYD spacecraft by an asteroid. Credit: Planetary Resources.

Private space travel

Virgin Galactic and its founder, Richard Branson, are perhaps the most visible of the companies that are looking to bring private citizens into space—as long as they can pay \$250,000 for a ride. The first flight of Virgin into [space](#) is expected in the next year. Customers must pay a deposit upfront upon registering and then the balance before they head into suborbit. In the case of Virgin, Branson has a portfolio of companies that can take on the financial risk during the startup phase, but eventually the company will look to turn a profit through the customer payments.

Asteroid mining



The International Space Station in March 2009 as seen from the departing STS-119 space shuttle Discovery crew. Credit: NASA/ESA

The business case for Planetary Resources and Deep Space Industries, the two self-proclaimed asteroid mining companies, hasn't fully been released yet. We assume that the companies would look to make a profit through selling whatever resources they manage to dig up on asteroids, but bear in mind it would cost quite a bit of money to get a spacecraft there and back. Meanwhile, Planetary Resources is diversifying its income somewhat by initiatives such as the Arkyd-100 telescope, which will look for asteroids from Earth orbit. They raised money for the project through crowdsourcing.

Space station research

NanoRacks is a company that has research slots available on the International Space Station that it sells to entities looking to do research in microgravity. The company has places inside the station and can also

deploy small satellites through a Japanese system. While the company's website makes it clear that they are focused on ISS utilization, officials also express an interest in doing research in geocentric orbit, the moon or even Mars.

Source: [Universe Today](#)

Citation: How commercial spaceflight makes a profit (2014, October 2) retrieved 24 April 2024 from <https://phys.org/news/2014-10-commercial-spaceflight-profit.html>

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