

Commercial Space - Against the Odds?

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Commercial space is, by the definition used here, space transportation with vehicles developed under non-government, or private, funding. There are basically two main categories of vehicles which are being developed by private spaceflight companies: manned, suborbital vehicles such as SpaceShipOne developed by Burt Rutan of Scaled Composites and Satellite Launch Vehicles, such as the Falcon 1 and 9 vehicles developed by Space Exploration Technologies. The development of Satellite Launch Vehicles has been a difficult task in the past, and many companies have been unsuccessful for a variety of reasons. In most cases, the development costs were higher than anticipated, the development time was longer than expected and the first vehicle itself failed due to design or operational errors. It is interesting and educational to recall some of the commercial attempts of launcher development.

The goal of the development of manned suborbital vehicles is mostly Space Tourism; this class of vehicles has been stimulated by the Ansari X Prize. The prize itself was won by SpaceShipOne in 2004, and several companies are now developing vehicles to transport private astronauts to 100 km altitude and back to Earth. Several new Spaceports have been founded, such as the Mojave Air and Spaceport, the Oklahoma Spaceport and many more.

The energy to insert a satellite into Earth orbit is significantly higher than reaching 100 km altitude in a suborbital flight. The higher energy (velocity) required is one of the reasons why orbital spaceflight is more difficult and has shown more failures. However, achieving 100 km altitude should not be underestimated because the velocity losses are significant and the steep reentry requires a lifting body or a larger heatshield.

With the current investments into Space Tourism, spaceflight in general may become cheaper and more common over the next years.