COMMERCIAL SPACE VEHICLES

RACE TO THE STARS

BY CARLOS M. GONZÁLEZ

To develop safe, reliable, and cost-effective space transportation, NASA formally established the Commercial Crew and Cargo Program Office (C3PO) in 2005. From 2006 to 2013, the C3PO office managed the Commercial Orbital Transportation Services, which invested and advised companies to develop their space transportation capabilities.

Since the launch of the C3PO office, there have been several different companies developing their own low-Earth-orbit (LEO) space vehicles and technology to help deliver supplies, launch satellites, and develop commercial space exploration crews.

In 2012, the SpaceX Dragon made history, becoming the first commercial spacecraft to deliver cargo to the International Space Station (ISS).

Explore the commercial companies that have created space vehicles for cargo and crew transport

SpaceX's Dragon and Dragon 2

Image Credit: SpaceX

Elon Musk established SpaceX in 2002 to develop a family of rockets and space vehicles that would be reusable, reducing the cost of space access. SpaceX developed the Dragon space vehicles to deliver crew and cargo to the ISS, along with the successful launch and reuse of the Falcon rockets. The Dragon Endeavour successfully launched in May 2020, becoming the first crewed flight of the Dragon capsule.

Northrop Grumman's Cygnus

Image Credit: NASA

Initially designed by the Orbital Sciences Corporation, the Cygnus is an expendable cargo spacecraft now manufactured and launched by Northrop Grumman. The Cygnus was the second successful commercial resupply mission to the ISS. The Cygnus vehicles have flown 16 successful resupply missions and have three scheduled missions between 2022 and 2023. In December, Northrup Grumman signed a Space Act Agreement with NASA to develop a new free-flying space station in LEO.

Sierra Nevada Corporation's Dream Chaser

Image Credit: Sierra Nevada Corporation

The Dream Chaser from the Sierra Nevada Corporation (SNC) is the next cargo/crew transport vehicle soon to launch into orbit. The Dream Chaser differs from the Dragon and Cygnus by using a spaceplane concept. The cargo concept will have folding wings and deliver a payload of up to 5,000 kilograms. The SNC announced the first flight of the Dream Chaser would launch in 2022.

Boeing's CST-100 Starliner

Image Credit: Boeing

The Starliner is a partially reusable spacecraft designed to transport crews to the ISS and LEO destinations. The spacecraft is designed to carry four passengers and small cargo, and the vehicle itself can be reused up to 10 times. Unlike previous space capsules, the Starliner will make airbag-cushioned landings on the ground rather than into water. Design and testing began in 2010, and the first orbital flight was test-launched in 2019. The first crewed test flight is planned for later in 2022.

Blue Origin's New Shepard

Image Credit: Blue Origin

The first successful space tourism venture, Blue Origin developed the New Shepard as a vertical-takeoff and -landing vehicle capable of suborbital space travel. Prototyping began in 2006, and a successful uncrewed flight test took place in 2015. The vehicle completed a vertical soft landing, making it the first successful vertical landing of a suborbital booster rocket to return from space. In 2021, Blue Origin made history by flying its first space tourist flight. Amazon and Blue Origin CEO and founder Jeff Bezos was one of four passengers to make the flight. Two other flights took place in 2021, and three more are scheduled for 2022.

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