

# Newcomers gain traction in race for NASA's new manned spacecraft deal

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An established aerospace giant and two newcomers are in the final stretch of a competition to build the next "taxi service" to the International Space Station, and experts say the upstarts are gaining traction.

Boeing Co., SpaceX and Sierra Nevada Corp. are pushing rival designs for NASA's next manned spacecraft, which by 2017 would start taking American astronauts to the [space station](#). It is a race with potentially billions of dollars and hundreds of jobs at stake. NASA is expected to pick one or possibly two companies by September.

The space agency already has spent almost \$1.5 billion on developing the spacecraft, with 40 percent of that amount going to Boeing. Despite that investment, Boeing is getting pressure from the newer players amid a flurry of media blitzes to establish their spaceflight credibility.

"Right now, I'd say the leader is SpaceX," said Roger Handberg, a space-policy expert and professor of political science at the University of Central Florida. "They are successfully launching a (cargo) capsule to the ISS, and the others aren't." Meanwhile, Elon Musk, SpaceX's billionaire founder, "is dominating the airwaves, trying to create the perception that SpaceX is the only option for this new deal," Handberg said.

The job of ferrying American astronauts to the space station has been done by Russia under contract with the U.S. since the end of the space-shuttle program in 2011. Mounting tensions between the two countries

after Russia's invasion of Ukraine have given the spacecraft choice a sense of urgency. NASA hopes that will lead Congress to fund two winners - the agency's preferred approach because it would ensure having a backup plan.

Although Boeing may hold the edge in experience because it has worked on NASA missions for decades, SpaceX and Sierra Nevada have come up with edgier technology that could capture the imagination of the American public in this new space race, said Eddie Ellegood, director of aerospace development at Embry-Riddle Aeronautical University in Daytona Beach. Boeing and SpaceX are offering capsules; Sierra Nevada has a "mini-shuttle" called Dream Chaser.

"NASA tends to be conservative, especially with something so new like this," he said. "But I somehow think they'll opt for the SpaceX vehicle and Sierra Nevada's Dream Chaser. It's just a gut feeling, but it might be time for something new now."

Experts say the factor least likely to influence the agency's decision is how many jobs the winner will create along Florida's Space Coast or anywhere else. Cost should rule the day, they say, as NASA comes to grips with the tight federal budgets of the deficit-reduction era. Congress has allocated \$800 million for the program in NASA's 2015 budget, though the agency doubts that is enough for development of the new craft.

"I really can't imagine NASA sitting around figuring out how it can create the most jobs with this contract," said John Pike, founder of Globalsecurity.org, an aerospace-research firm in Washington. "If they wanted to maximize employment in the aerospace industry, they could choose two winners and dual-source this work with duplicate production lines. But you have to know that's going to be just too expensive."

That may put a damper on Boeing, which has become a hometown choice in Brevard County, Fla. If it wins the contract, it plans to headquarter the program in Brevard, build its CST-100 capsule at Kennedy Space Center and bring 500 to 600 jobs from across the country.

Boeing would add nearly three times the number of jobs that rival Sierra Nevada, based near Reno, would bring to KSC. Sierra said it would add more than 200 jobs to its work force of 375 employees in Florida.

SpaceX would not comment on the capsule deal. "SpaceX has a longstanding commitment to the Space Coast that will only increase given the company's lease of Launch Pad 39A," SpaceX said in a statement. "That commitment is in place regardless of the decision made on the (crew capsule) contract."

Earlier this year, NASA awarded the Los Angeles-area company a long-term lease to manage KSC's Launch Complex 39A for commercial space launches.

Still, it appears that Boeing's KSC expansion would be far more substantial than its rivals', said Handberg, the UCF professor.

"That's what their argument has been, and that's why Florida likes it," he said. "If SpaceX wins with the Dragon, it will fly here, but it probably won't have that much of a presence here. They would build it elsewhere and fly in a ground crew to handle the launches."

Still, whoever wins the new spacecraft contract, people should tamp down their expectations about how many jobs the new manned-spaceflight industry will create, Handberg said.

"Boeing is not going to return the Space Coast to happy-days-are-here-

again shuttle days," he said. "It will be much smaller, leaner activity."

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## RIVAL DESIGNS

- Boeing's CST-100 (Crew Space Transportation) capsule would ride on an Atlas V rocket. Its silhouette is familiar, resembling Apollo capsules, with a similar splashdown after re-entry. Inside, however, it sports wireless digital controls and, like its rivals, holds up to seven astronauts.
- Sierra Nevada Corp. has partnered with Lockheed Martin Corp. to build the Dream Chaser spaceplane, a "mini-shuttle" that would be launched on a Titan V rocket. The design promises conventional-runway landing capability and a heat-protection system that doesn't rely on tiles.
- SpaceX's Dragon V2 capsule would be launched aboard a SpaceX Falcon 9 rocket. The V2 has a modern flair, with a rounded triangular design, extended nose and sleek cabin. It is designed to use thrusters to land like a helicopter.

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