Converging paths to success: Two NASA SBIR companies join forces to strengthen space life support competencies

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Paragon and Final Frontier Design's paths came together to take on bigger challenges.

Photo credit: Paragon Space Development Corporation

The NASA SBIR/STTR program provides seed funding to help small businesses grow and discover their path forward. In the case of Paragon Space Development Corporation and Final Frontier Design (FFD), their unique paths came together, empowering them to take on even bigger challenges than they had individually.

In April 2022, Paragon, a small business provider of life support systems and thermal control products for space and on Earth, acquired FFD, a small business specializing in building and testing spacesuits. Both Paragon and FFD developed their capabilities as NASA SBIR/STTR awardees, which played a part in this acquisition.
Founded in 1993 and based in Tucson, Arizona, Paragon has worked with the NASA SBIR/STTR program since 2004, advancing its life support systems for space and sharpening its ability to provide a complete Portable Life Support System (PLSS) for astronauts. Over the years, Paragon has supported multiple government agencies, including NASA. In 2021, Paragon announced it had joined Northrop Grumman’s team to develop the Habitation and Logistics Outpost (HALO) in partnership with NASA. Paragon will design and implement HALO’s Environmental Control and Life Support System (ECLSS), tying back to the company’s expertise built in part through NASA SBIR and STTR contracts.

Already a leader in life support systems, Paragon sought to expand its competencies to provide end-to-end spacesuit solutions. The company outlined a technology roadmap with strengths and gaps while also analyzing the future needs of customers, including NASA. Recognizing a gap in soft goods spacesuit components, Paragon identified FFD as a strong candidate for acquisition.

Based in Brooklyn, New York, FFD was founded in 2010 by Ted Southern and Nikolay Moiseev, who competed together in NASA’s Astronaut Glove Challenge in 2009 and won the second-place prize. Encouraged by NASA to hone their skills further, the pair formed a business, bringing together Moiseev’s background in spacesuit development with Southern’s experience working on garments for the entertainment industry.

FFD received its first NASA SBIR award in 2011 to advance its spacesuit glove technology. Since then, the company has continued to find opportunities within NASA through the SBIR/STTR program, other NASA programs, and direct contracts, with a focus on enhancing soft goods spacesuit components.

According to Paragon’s President & CEO Grant Anderson, FFD’s proficiency in spacesuit architecture, as well as the company’s track record with NASA through SBIR/STTR and other programs, were key factors in Paragon’s decision to acquire the company. For FFD, Paragon’s offer came at the right time.

“As [FFD] got closer to space flight,” said Southern, who is now a department manager at Paragon, “I felt a lot of personal responsibility for what we built, so I always envisioned us getting acquired or merging to support all the complexities that came along with spaceflight.” Thanks to their own experience with the NASA SBIR/STTR program, as well as the acquisition successes of other SBIR/STTR firms, the FFD team was confident in its decision to join Paragon.

In June 2022, Paragon announced it was awarded NASA’s Exploration Extravehicular Activity (xEVAS) services contract as part of the Axiom Space team. The 10-year contract with a potential total value of $3.5 billion seeks to develop the next generation spacesuit to support Artemis missions. Paragon enters this contract period armed with decades of experience in life support systems and strengthened by its new competencies in soft goods development from FFD.

Reacting to the SBIR/STTR roots of the acquisition, Anderson said, “It’s an example of two companies working in their respective fields, using that non-equity investment that NASA does with SBIR and STTR awards. This is one of the many ways the government can provide very meaningful things that benefit the nation.”