



CEG's Business Growth Solutions

Growing Manufacturing & Technology Companies

Free Form Fibers Moves to Commercialization with CEG's guidance



Overview

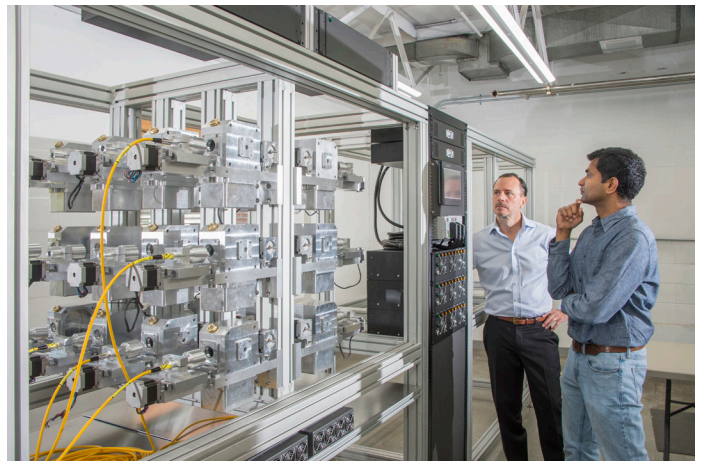
Free Form Fibers (FFF) is a Saratoga Springs small manufacturer that makes high value, inorganic, high purity ceramic fibers and materials through a laser-driven chemical vapor deposition (LCVD) process it has been developing for 15 years. Founded in 2006, FFF has primarily operated as an R&D operation. Since 2010, it has received 13 Small Business Innovation Research (SBIR) grants totaling \$5.8 million from the U.S. Department of Energy, National Science Foundation, NASA and Army. Its high-performance materials have applications such as aerospace, semiconductors and energy. As the company shifts from R&D to commercialization, its payroll has grown from seven in March 2020 to 12 today.

The Situation

In early 2020, FFF began taking steps to scale up production of its high-performance ceramic fibers. Whereas it would have taken FFF several years to make a metric ton of its ceramic fibers via the LCVD process, it currently would take them a year to produce that much. But to keep up with demand, further improvements were necessary. "We needed to make the big step to go from R&D scale to manufacturing scale," said FFF CEO Shay Harrison. To help FFF prepare for the changes and growth that will come with commercializing their business, Harrison called on the Center for Economic Growth's Business Growth Solutions (BGS) unit to lead a Prescriptive Value Stream Mapping project. The overall goal of this project was to plan for the ramp up of production to achieve time and motion efficiency.

The Solution

FFF operates in an old cereal manufacturing building in the Grande Industrial Park. As part of its scaling up effort, FFF moved its LCVD production equipment to a compact space in the facility: a 1,000-square-foot room previously used as a machine shop. The Value Stream Mapping project was led by CEG BGS's director of technical services, Tom Bell. FFF's CEO had worked with Bell years earlier while Harrison worked as the director of research and development of Blasch Precision Ceramics in Menands.



The FFF team is now designing the next step-up production system in which the company will increase its throughput by six-fold at full buildout. FFF was at a critical juncture where it could learn what works and what slows down its current production system. Bell worked closely with FFF's production manager and co-founder, Ram Goduguchinta, to understand and refine the system and ensure production was at the highest level of efficiency prior to the ramp.

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Shay Harrison
CEO, Free Form Fibers

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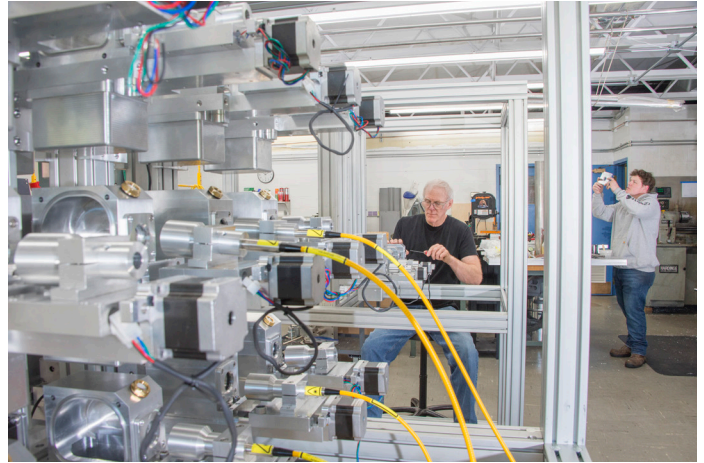
An example of an insight that resulted from the Value Stream Mapping process centered on an access point for one of the heads on the LCVD tool. Bell noted that the existing access point would pose challenges for a technician trying to test or manually access materials produced. He recommended the heads be redesigned in a way so a technician could easily access them. Bell also mapped out where in the manufacturing process quality checks should be performed.

“Tom was very insightful about what data you need to capture and when”

This is the first step to a much larger puzzle for FFF as the company looks to cross the commercialization chasm. This also is only one of the multiple collaborative efforts between CEG and FFF to ensure a seamless transition for this manufacturing company. Additional projects include more in-depth Lean Training, Customer Relation Management implementation, Risk Management and Human Resources Consulting.

The Results

- \$160,000 in Increased Sales
- \$40,000 in Cost Savings
- \$73,000 in New Investments
- 3 Jobs Created



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Free Form Fibers' commercialization plans are now stronger because of the insights the Center for Economic Growth helped us gain through the Value Stream Mapping process. From our growth as an R&D firm to our shift toward commercialization, CEG has helped us unlock value in the company and we will continue to rely on CEG's expertise as we further scale up.

Shay Harrison
CEO, Free Form Fibers

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To learn how CEG BGS could help your company, contact CEG BGS Senior Vice President, Michael Lobsinger at michaell@ceg.org or call 518-431-1481.

