Flying High

Additive Manufacturing is Changing the Face of the Aerospace Industry

In this exclusive interview, Scott Sevcik, VP Manufacturing Solutions at Stratasys, offers his insight on how additive manufacturing continues to impact the aerospace industry and what we can expect from the technology moving forward.

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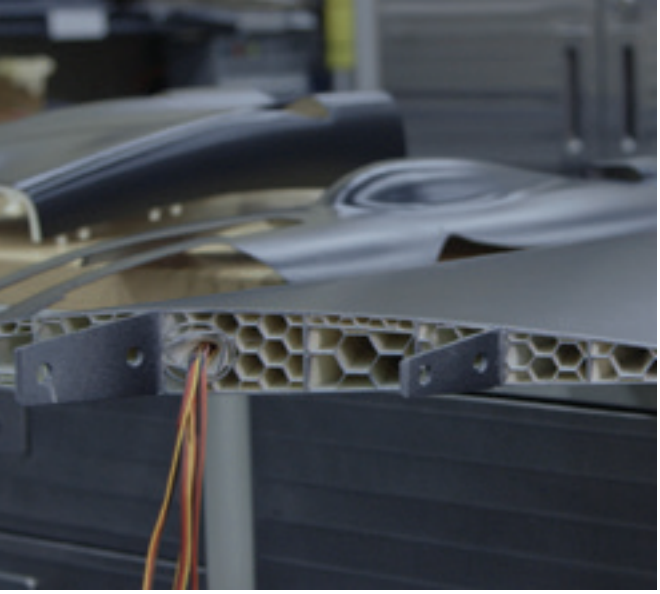
1. What makes additive manufacturing such a good fit for the aerospace industry in particular?

Additive manufacturing technology, such as that offered by Stratasys, helps aerospace manufacturers reduce costly design challenges, and downtime, while innovating faster, testing more thoroughly, and producing customized, flight-ready parts. The aerospace industry is constantly pushing technological boundaries to reduce weight and increase vehicle performance. Additive manufacturing accomplishes those goals.

Aerospace component production is a low-quantity, high-value operation. Because the quantities are low, users receive less mass-production benefit as they aren't amortizing tooling and development costs over as many units. With additive manufacturing of production parts, there ***is*** no tooling to amortize. Therefore, at aerospace quantities, the technology is often a lower-cost alternative to traditional manufacturing methods.

2. How has the relationship between additive manufacturing and the aerospace industry evolved in recent times?

We have been working closely with aerospace OEMs for years. The use of the technology continues to take steps forward. Stratasys' ULTEM 9085 material caters specifically to the needs of the aerospace industry. This material provides high strength-to-weight ratio and meets flame, smoke and toxicity requirements for aircraft interior applications. We're now seeing more aircraft OEMs and interiors OEMs adopt our applied additive technologies to meet their supply chain efficiency and low volume custom production needs.



For example, our relationship with Airbus stretches back several years. We collaborated with them first to prove feasibility on FDM technology for fight-ready parts, and now Airbus has serial production 3D printed polymer parts on their A350 XWB aircraft.

We continue to help customers innovate and advance their industries. In June 2017, we announced a technical partnership with BOOM Supersonic, providing additive manufacturing expertise to enable the company to make its supersonic goals a viable reality though 3D printed tools and printed parts on-vehicle.

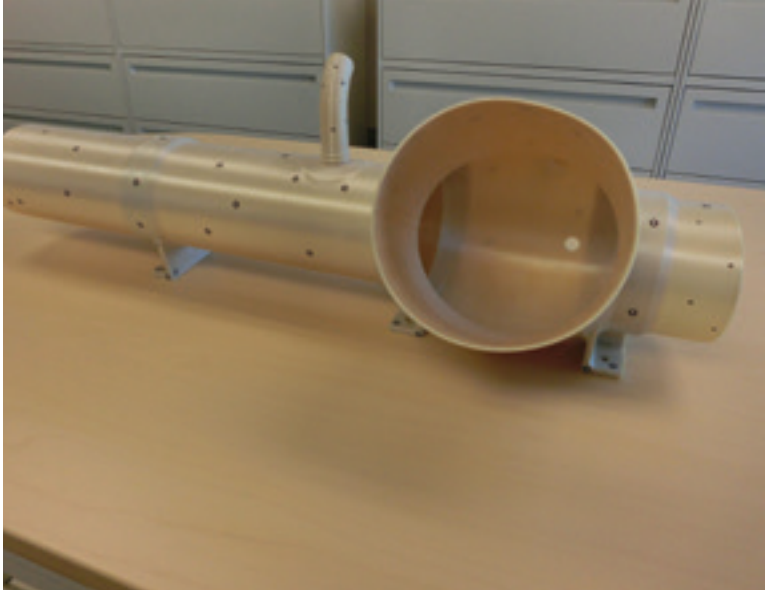
3. *How does 3D printing improve supply chain flexibility?*

3D printing completely redefines the economics of a make/buy decision. Instead of making one decision during the development phase about producing or buying a certain part, access to additive manufacturing technology enables you to make that call at every procurement. Based on current capacity and the urgency for the part, you can choose to produce it within your own facility or outsource it to a qualified supplier. The ability to produce the same part on another qualified machine allows you to move around production for better efficiency and risk reduction.

The impact on the aftermarket is, perhaps, even more dramatic. We have already seen obsolete parts replaced with reverse engineered 3D printed parts, and that has a significant impact on how operators are viewing the long-term implications of 3D printing. Imagine eliminating the tens of billions of dollars in inventory sitting idly on shelves around the world waiting for an aircraft-on-ground. When you can print a tool or a part, those tools and parts can be stocked digitally and produced on demand.

4. *What are the challenges for additive manufacturing in the aerospace industry?*

Process repeatability is the key. At this year's Paris Air Show, we launched our specific system for this market: the Aircraft Interiors Certification solution. This is based on the Fortus 900mc Production 3D Printer, designed specifically for producing aircraft interior parts that will need to meet stringent FAA and EASA certification requirements. We've incorporated the FDM ULTEM 9085 material and a new edition of the Fortus 900mc Production 3D Printer with specialized hardware and software, which is designed to deliver highly repeatable mechanical properties. The unprecedented level of part-to-part and machine-to-machine repeatability is establishing Stratasys FDM as the first mature manufacturing technology in additive.



Scott Sevcik is the vice president of Manufacturing Solutions for Stratasys. In this role, he is responsible for defining and developing the Stratasys product offering for high requirements manufacturing industries.