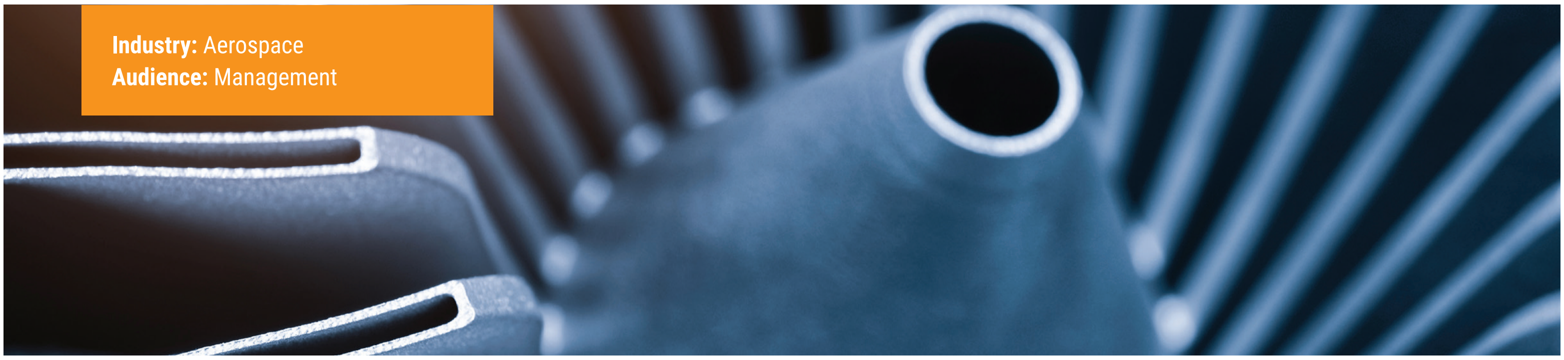

Industry: Aerospace
Audience: Management

Business Case Summary

Early defect detection increases overall equipment effectiveness and unlocks machine capacity.

Customer Profile:

Industry: Aerospace

Equipment Profile: Three types of L-PBF machine types producing parts with off-site post machining and heat treatment.

Production Profile: 200+ parts per year at a cost of $30,000 per part.

Key challenges:

- Failed builds negatively impacting production schedule
- Manufacturer missing client deadlines
- Limited capital available to resolve production challenges
- No confidence in part quality

Implementation RoIs:

- Unlocked 260 days of AM build time within existing fleet
- Direct savings of $460k p.a
- 15% reduction in production lead time
- 20% reduction in downstream inspection costs
- Manufacturer meets client deadline and wins future work

BUSINESS CASE

A contract manufacturer of large AlSi10Mg aerospace brackets for multi-functional mounting fixtures. Producing several different designs across a fleet of 15 large format L-PBF machines, with a print time of between 6 and 15 days and several post-process operations.

Business Challenge

In one part design, more than 10% of parts were failing to meet final inspection, despite best practices in process controls.

Part failure was detected in customer defined acceptance tests with mechanical testing immediately prior to delivery. Each failure represented 15 days of print time, plus 4 weeks of post processing, and a sunk cost of $23k.

The 6-week delay in producing a replacement part resulted in missing subsequent delivery deadlines, frustrating the client and resulting in a portion of assigned work be redirected to a competing contract manufacturer.

The originally planned solution, was to purchase another large format machine with a CAPEX of $2 million, to provide the build capacity required to build redundant parts.

The Additive Assurance Solution

With in-situ inspection enabling them to locate exactly when and where parts failure was occurring, the manufacturer was able to stop building faulty parts and identify the root cause of the failure.

The Additive Assurance solution gave operators the power to set process limits that notify immediately on failure, allowing them to locate clusters of lack of fusion defects in a critical region of the part.

Our detailed analytics helped them trace back to the route cause, modify the thermal support structure and process parameters in the region to improve part yield.

With the part validated after improving the design fault, the manufacturer was able to compare each subsequent part to the gold standard reference part, thanks to the ability to give a one-click solution to quantify parts variance. This led to reduced post build inspection, a decrease in overall lead time and the freeing up of additional production capacity.

Because they could stop parts when they were failing, the manufacturer unlocked an additional 260 days of build capacity per year, removing the need to purchase another machine.

ADDITIVE ASSURANCE

CONFIDENCE YOU CAN BUILD ON

Set a meeting today to find out how Additive Assurance can unlock capacity in your metal additive production.

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