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Airbus Innovation Days 2016

The Future of ALM – “3D-Printing”



*Additive Layer Manufacturing

Additive Layer Manufacturing (ALM): Airbus leading in metal “3D printing”

First bionic cabin bracket „printed“ from titanium powder



June 20th, 2014: First flight of bionic cabin bracket

Additive Layer Manufacturing: In service for Spare Parts

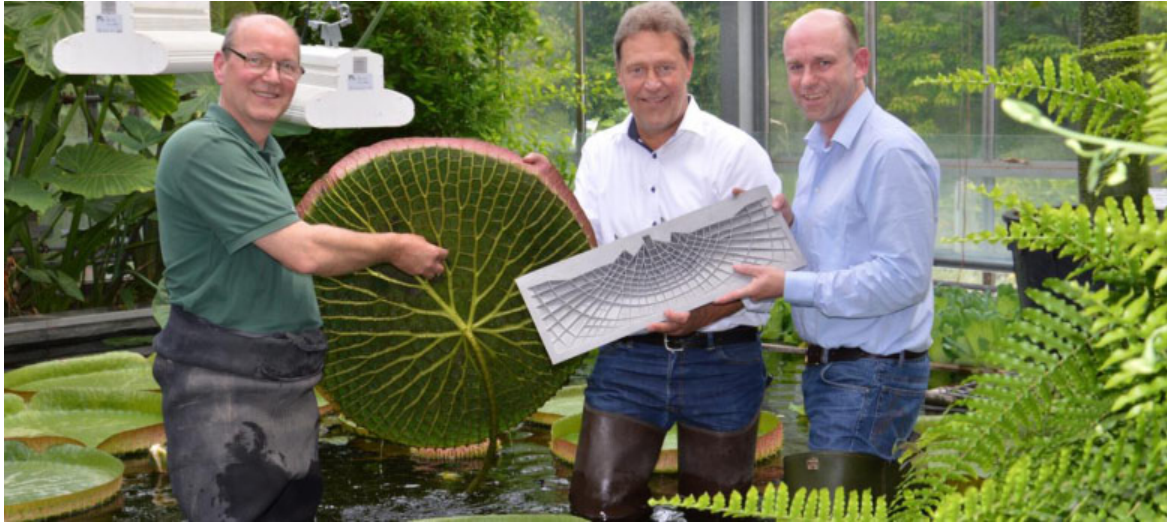
Spare Parts

- First „printed“ Spare Part in service with Air Transat since February 2014
- Topology optimized and printed Safety Collars
 - ➔ improved maintenance handling enabled by Bionic Design

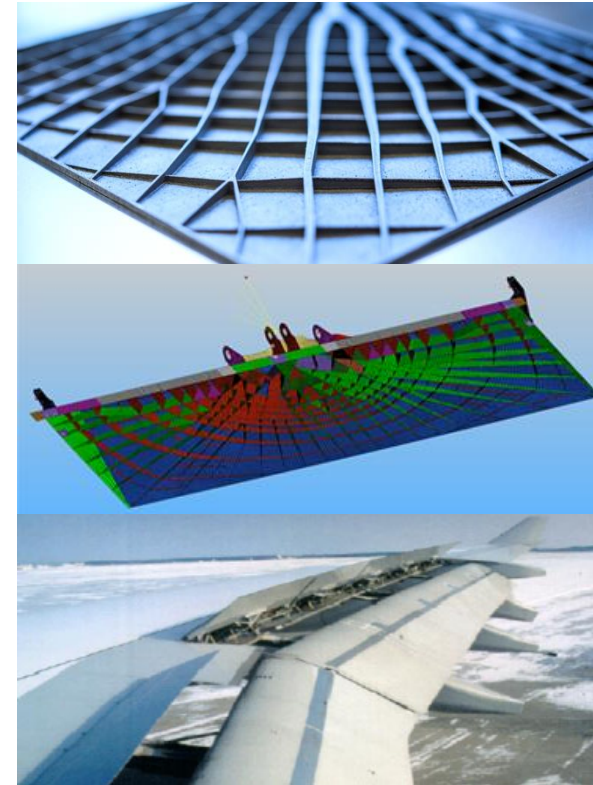


Bionic design: understanding & copying nature's solutions

Improving aviation's environmental footprint

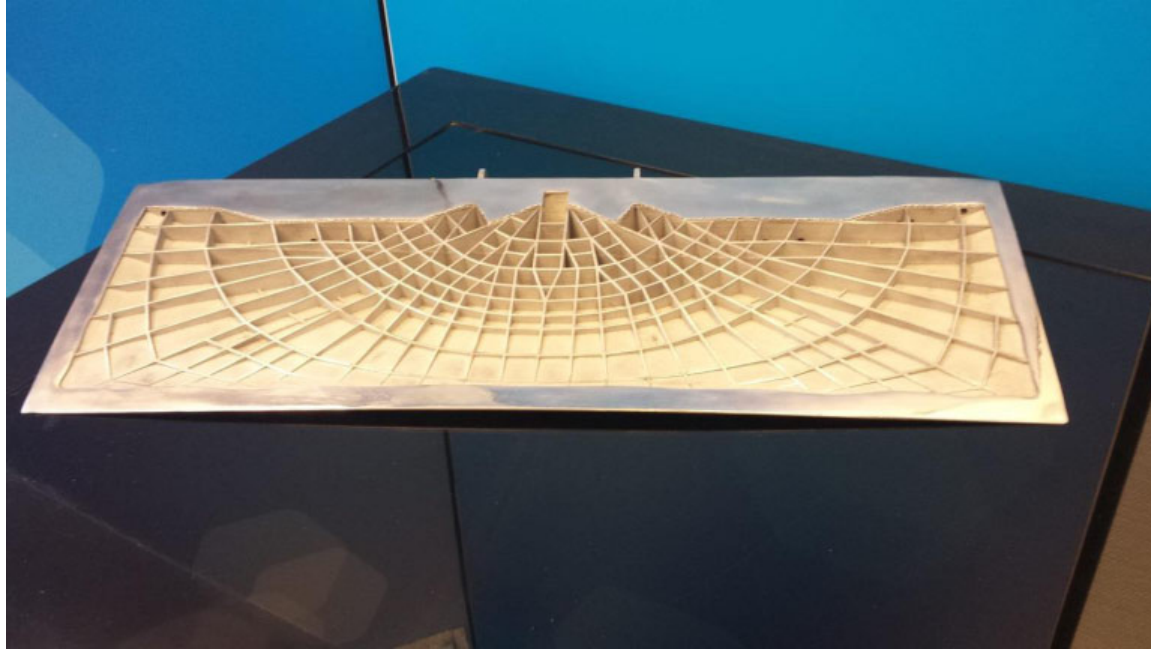


Giant water lily at the University of Kiel



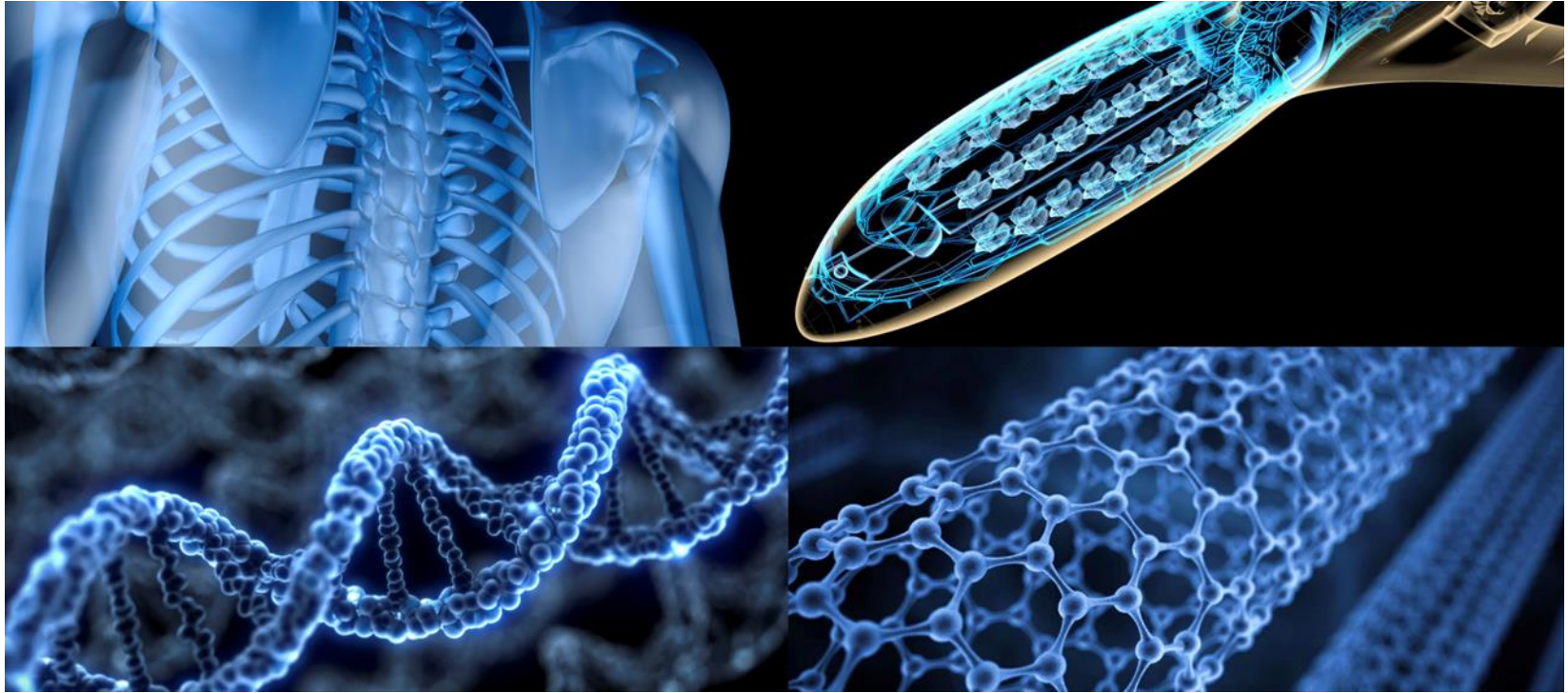
ALM + bionic design: up to 55% less weight

Enormous potential to revolutionise aircraft design & manufacturing



➔ flyable on Airbus test aircraft approx. Q4 2018

Re-thinking today's product design



“Algorithms are the new star-designers” - Carl Bass, CEO AUTODESK, 2014

Bionic Partition: 50% weight reduction is possible & demonstrated

First bionic cabin partition „printed“ from Aluminium powder



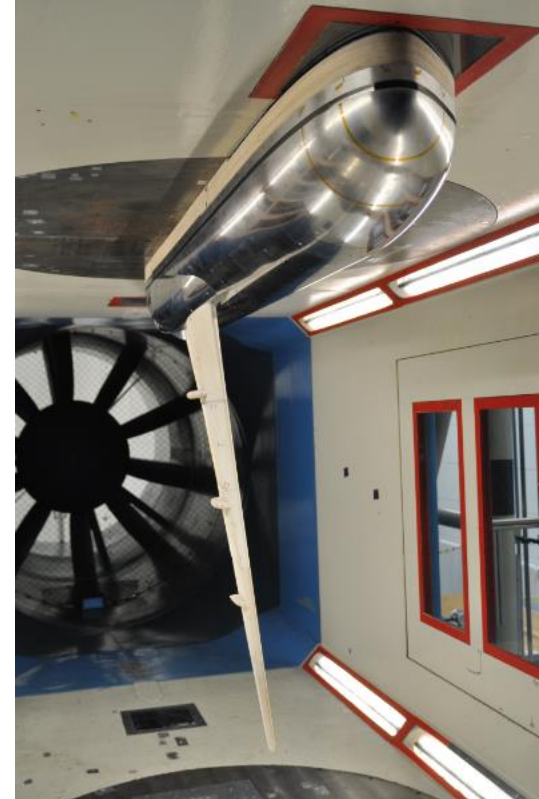
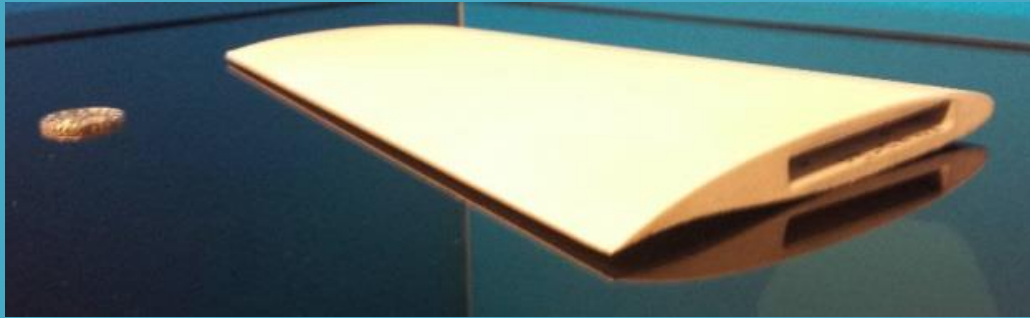
→ flyable on Airbus test aircraft approx. Q4 2016



Future fast track product development by using ALM (1/2)

Wind tunnel tests

- Polyamide-Alumide materials
- 90% lead time reduction
- 75% cost reduction
- Rapid analysis of future aircraft components



Future fast track product development by using ALM (2/2)

THOR

- THOR - Test of High-tech Objectives in Reality
- Flyable platform 4 x 4 m
- 25 kg
- 4 weeks for 1 Aircraft
- 18 missions planned for 2016



Airbus ALM Industrial Platform

Europe-wide ALM Platform

- Material & process development
 - New bionic design methods and design software
 - ALM trainings
- and
- Industrial ramp-up

➔ **Established 2014**

