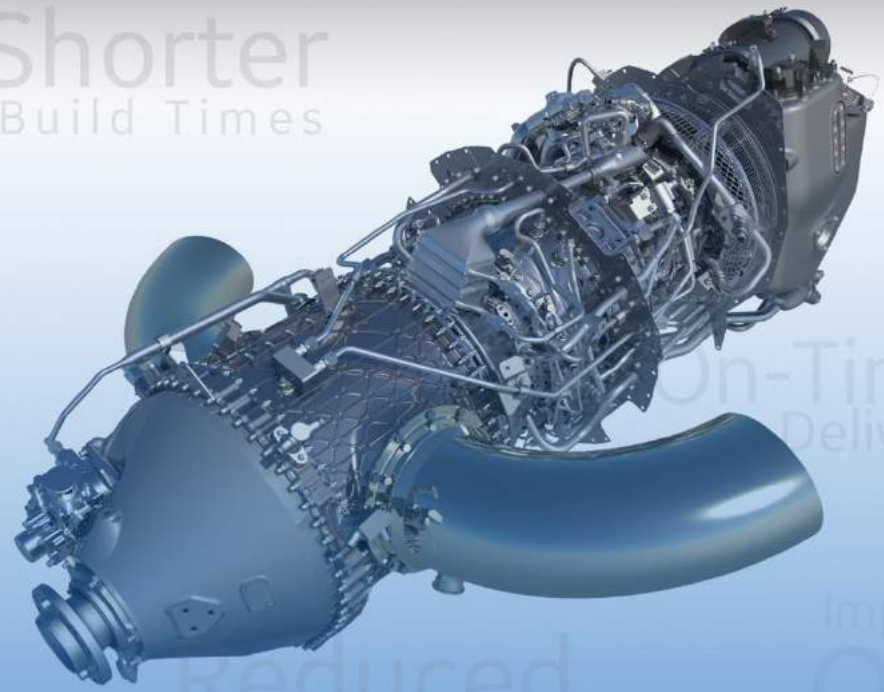
Accelerating the Additive Revolution

Mohammad Ehteshami
VP & GM GE Additive

Additive Manufacturing ... the new revolution



The world we've known for decades, is all about to change

GE's additive journey … so far

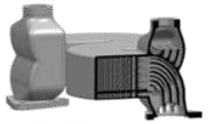
$5B+

INTERNAL COST EFFICIENCY

Technology

Infrastructure

1st LEAP Fuel Nozzle



1st Heat Exchanger

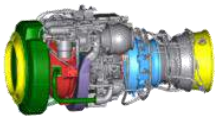
GE90 engine T25 Sensor Certified

GE9X Low Pressure Turbine Blade

Power F-Class Flex Tip

Fuel Nozzle Certified

Oil & Gas Nova LT Swirler



A-CT7 Engine

Advanced Turboprop Engine Prelim design

2010 2011 2012 2013 2014 2015 2016 2017

Formation of GE Aviation's additive team

Acquisition of Morris Technologies

GE Aviation Additive Technology Center (ATC) opens

Center for Additive Technology Advancement (CATA) opens

Acquisition of Arcam AB & Concept Laser

GE Additive launched

GE Additive

CONCEPTLASER a GE Additive company

Arcam a GE Additive company

LEAP fuel nozzle

Capabilities of full production
35,000 – 40,000 per year

25%
WEIGHT
REDUCTION

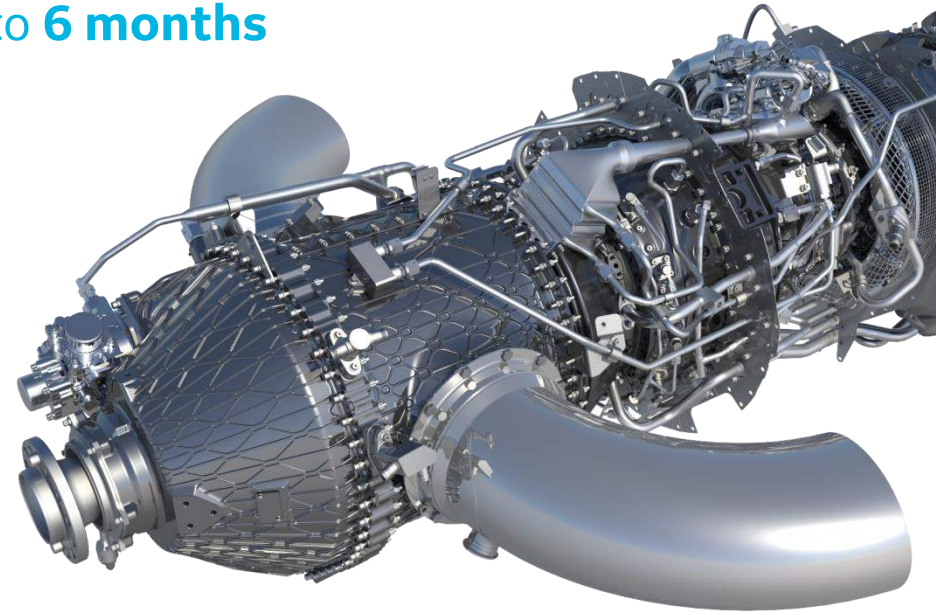
5X MORE
DURABLE

20 → 1
PARTS

Advanced Turboprop Engine (ATP)

Combustor test schedule reduced
from **12 months** to **6 months**

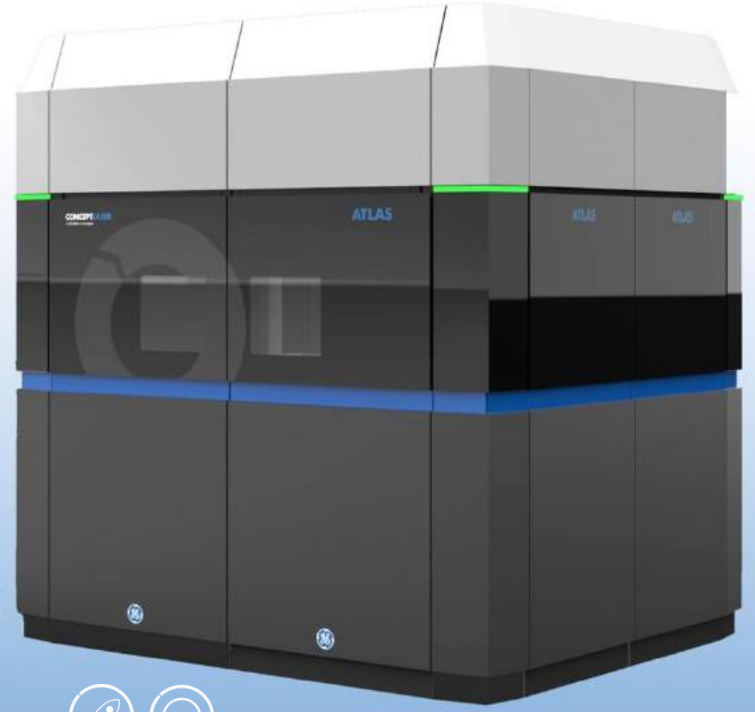
5%
WEIGHT
REDUCTION



20%
LOWER MISSION
FUEL BURN

855 → 12
PARTS

Additive Machine Capabilities are Improving



Size | Speed | Capability | Productivity

Investing in a limitless future

PRIMARY AND SECONDARY SCHOOLS (ages 8-16)

- **$2 million** for 3D-printing equipment and curriculum
- Focus on **STEM/STEAM** programs
- Over 400 recipients in 2017

COLLEGES AND UNIVERSITIES (2 and 4-Year)

- **$8 million** for metal additive manufacturing equipment
- Focus on **additive learning** efforts
- 8 recipients in 2017