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

- **2010**: Formation of GE Aviation’s additive team
- **2011**: Acquisition of Morris Technologies
- **2012**: 1st LEAP Fuel Nozzle
- **2013**: 1st Heat Exchanger
- **2014**: GE90 engine T25 Sensor Certified
- **2015**: Power F-Class Flex Tip
- **2016**: Oil & Gas Nova LT Swirler
- **2017**: GE Aviation Additive Technology Center (ATC) opens

**Technology**
- GE9X Low Pressure Turbine Blade
- Fuel Nozzle Certified
- A-CT7 Engine
- Advanced Turboprop Engine Prelim design

**Infrastructure**
- Acquisition of Arcam AB & Concept Laser
- GE Additive launched

**Additional Key Points**
- $5B+
- INTERNAL COST EFFICIENCY
- Nova LT Swirler
- GE9X Low Pressure Turbine Blade
- Fuel Nozzle Certified
- A-CT7 Engine
- Advanced Turboprop Engine Prelim design
- Acquisition of Arcam AB & Concept Laser
- GE Additive launched
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

LEAP is a trademark of CFM International, a 50/50 JV between GE and Safran Aircraft Engines
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