

# Workforce Challenges in Emerging Advanced Manufacturing



**oerlikon**

**Raytheon**

# 4 support technicians for every engineer

- GM ~ 140 AM Engineers
  - 560 Support Technicians
- FORD ~ 53 AM Engineers
  - 212 Support Technicians
- Lockheed Martin ~ 76 Engineers
  - 304 Support Technicians
- Boeing ~ 273 Engineers
  - 1092 Support Technicians
- Oerlikon ~ 52 Engineers
  - 208 Support Technicians

# Typical Production Job Titles

- Production Technician
- Operations Technician
- Maintenance Technician
- AM CNC Precision Machinist

# News today !!

CollPlant has licensed its collagen material to U.S. biotechnology company United Therapeutics for the 3D printing of solid-organ scaffolds for human lung transplants. The Israeli company will produce the material for United, and will also provide support for the establishment of a collagen manufacturing facility in the U.S.

Icon has raised \$9 million in seed funding for building houses manufactured by 3D printing. Earlier this year, the company demonstrated the building of the walls of a house in Austin, Texas in 24 hours.

SmileDirectClub has completed a private equity placement of \$380 million to expand its dental aligner business. The placement was led by Clayton, Dubilier & Rice. The Nashville-based company has served more than 300,000 patients since its founding in 2014. The custom transparent aligners are manufactured by 3D printing.

We are training technicians today for jobs that do not exist for a demand that may not be there.

Kenan Patrick Jarboe, Ph.D., National Academy of Engineering