

Additive Manufacturing in the Casting Industry: An Innovation Perspective

Brandon Lamoncha



Discussion Points

- Who We Are
- Innovation Landscape
- Our Experience in the Global Market
- Challenges
- Enablers
- Questions

Our Story

Located in Columbiana and
Leetonia, OH

3rd Generation Pattern Shop and
one of the largest sand core
producers in the USA

3D Printing for over 7 years

Serves diverse array of industries
from Agriculture to National
Defense





Conventional Core Production Facility

44708 Columbiana-Waterford Rd.

Columbiana, OH 44408

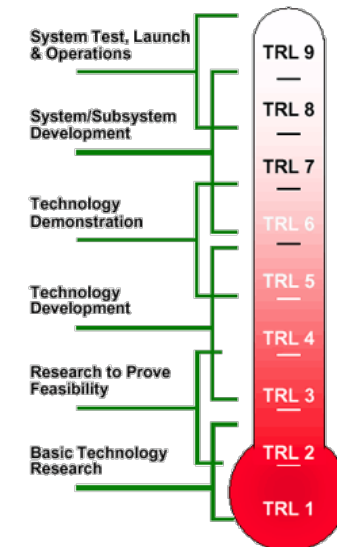


Current Printing Facility



The Global Innovation Challenge

- Low Profit Market Sector
- AM: Mature Technology but High Cost
- Selling to Second/Third Generation Owners
- Challenging Offshore Pressure
- Regulatory Impacts

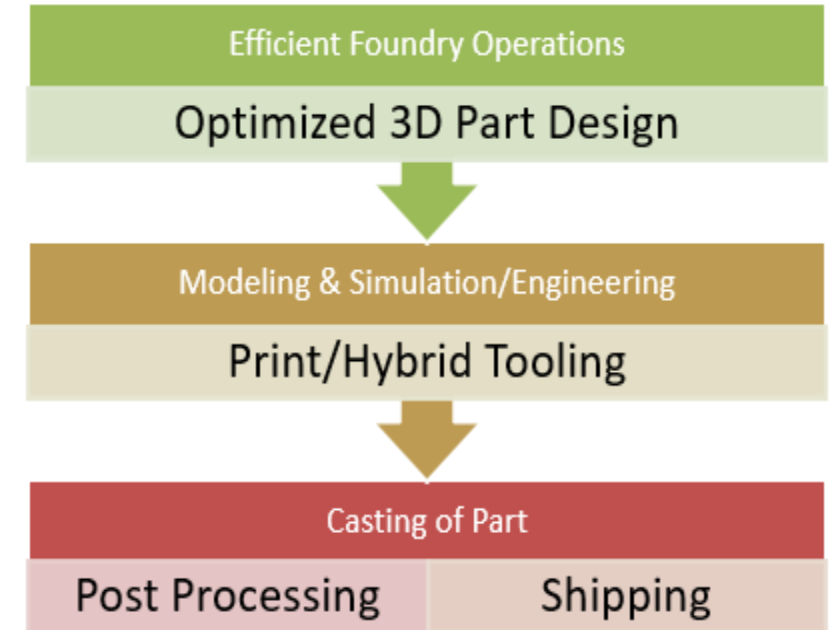
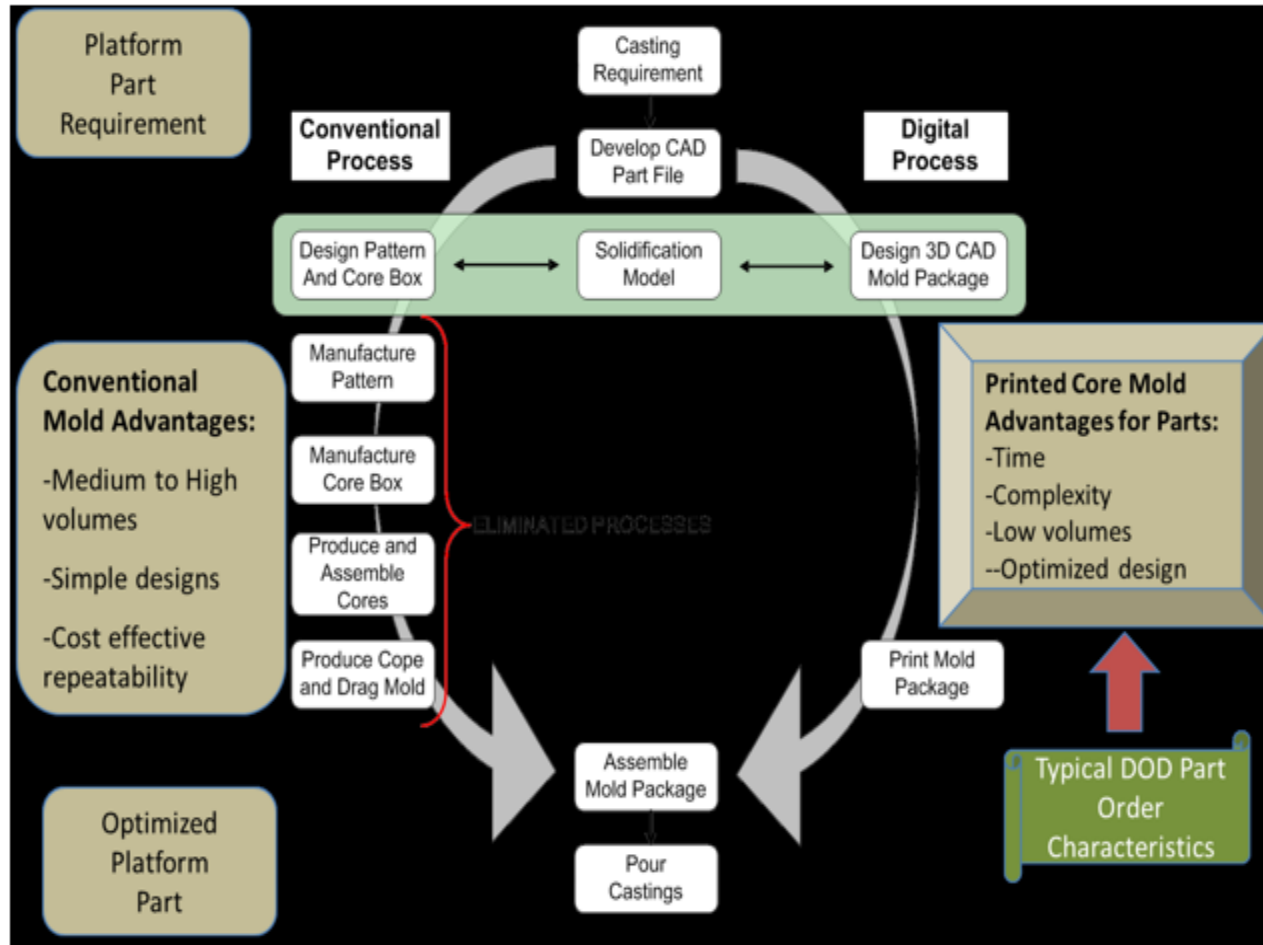


Achieving Success in This Environment

- Committed to Excellence & Integrity
- Positive Operational Culture
- Responsive to Industry Needs
- Excel in Service & Speed to Market
- We Never Stop Innovating



Tech Advantage: Speed to Market



Example: Design Validation – Before Tools are Cut

Print



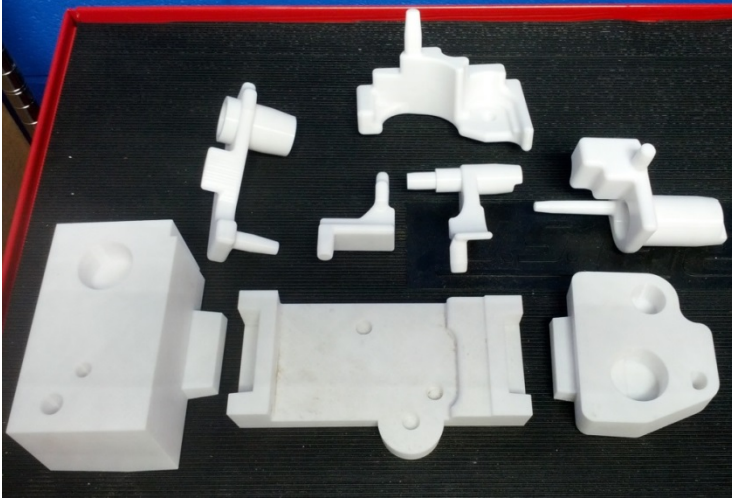
Cast



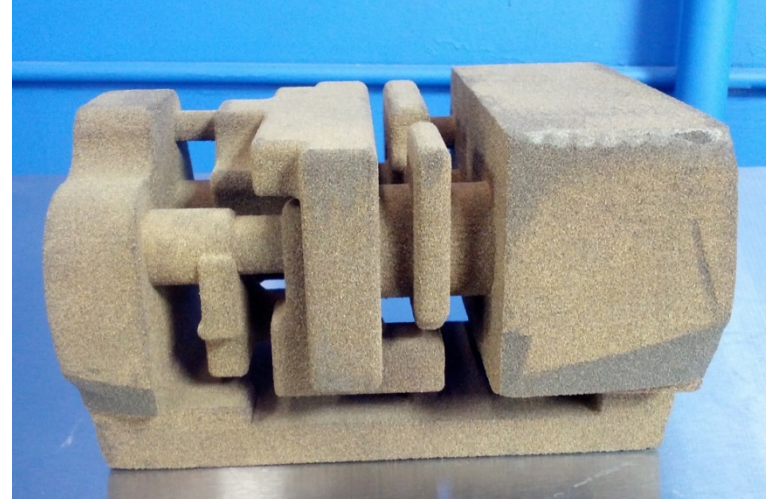
Cut Tooling



Tech Advantage: Consolidation Of Parts

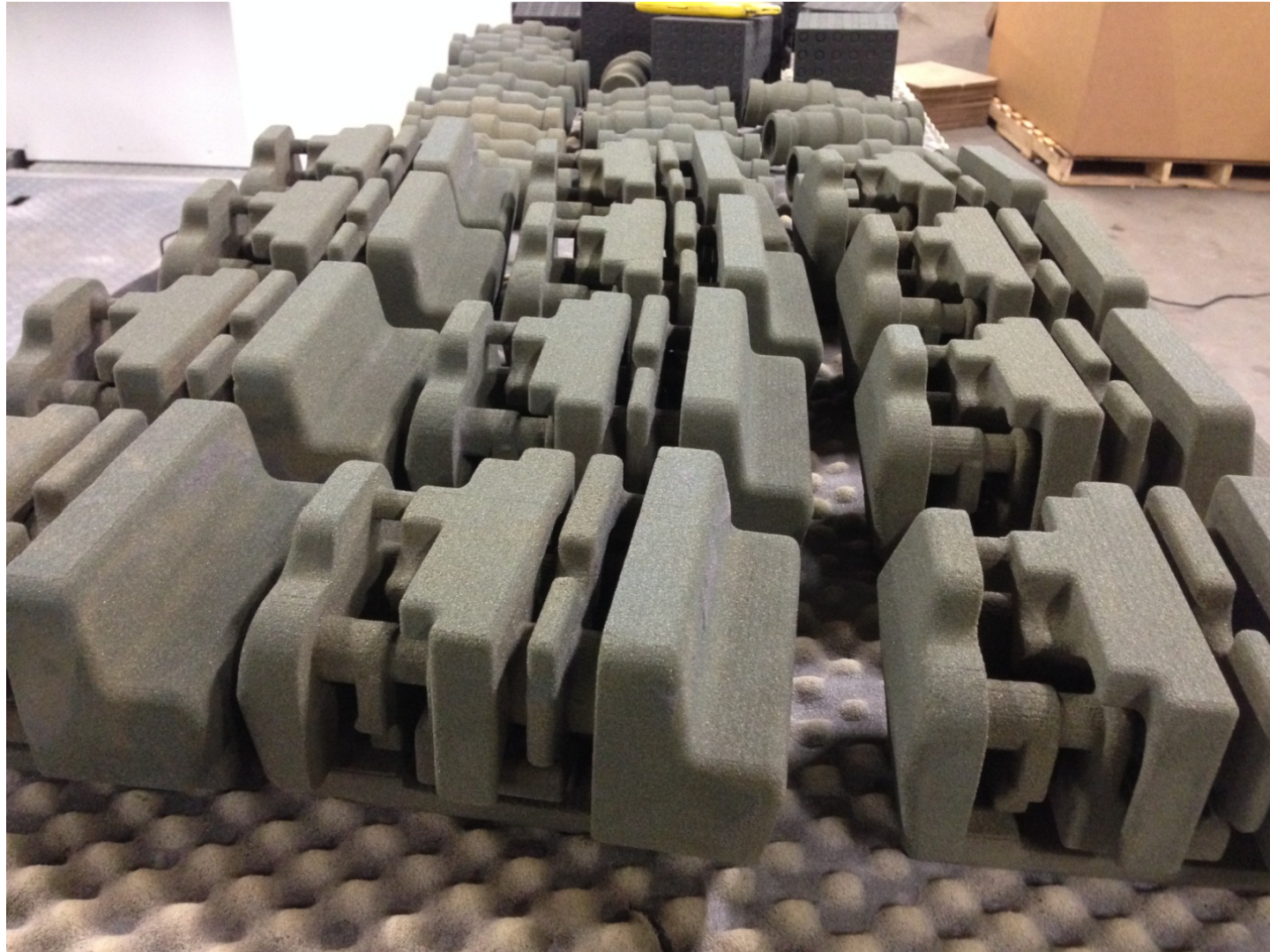


- Eight sand cores
- Cut, mated, and glued
- Requires stacking tolerances
- Extensive skilled labor hours
- Lower accuracy



- Single sand core
- Removal of stacking tolerances
- Increased accuracy, integrates with existing tooling
- Increase productivity

Full Production Example: Provide both Speed & Part Consolidation



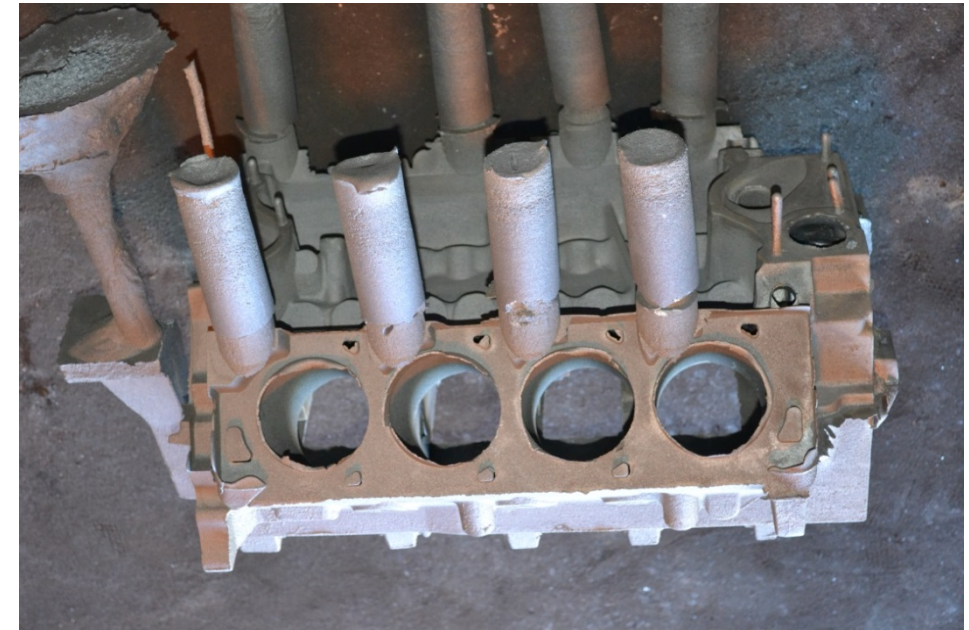
Large Castings

- Mold sections can be assembled to create large castings
- The size limit of the printer is not a constraint to casting size



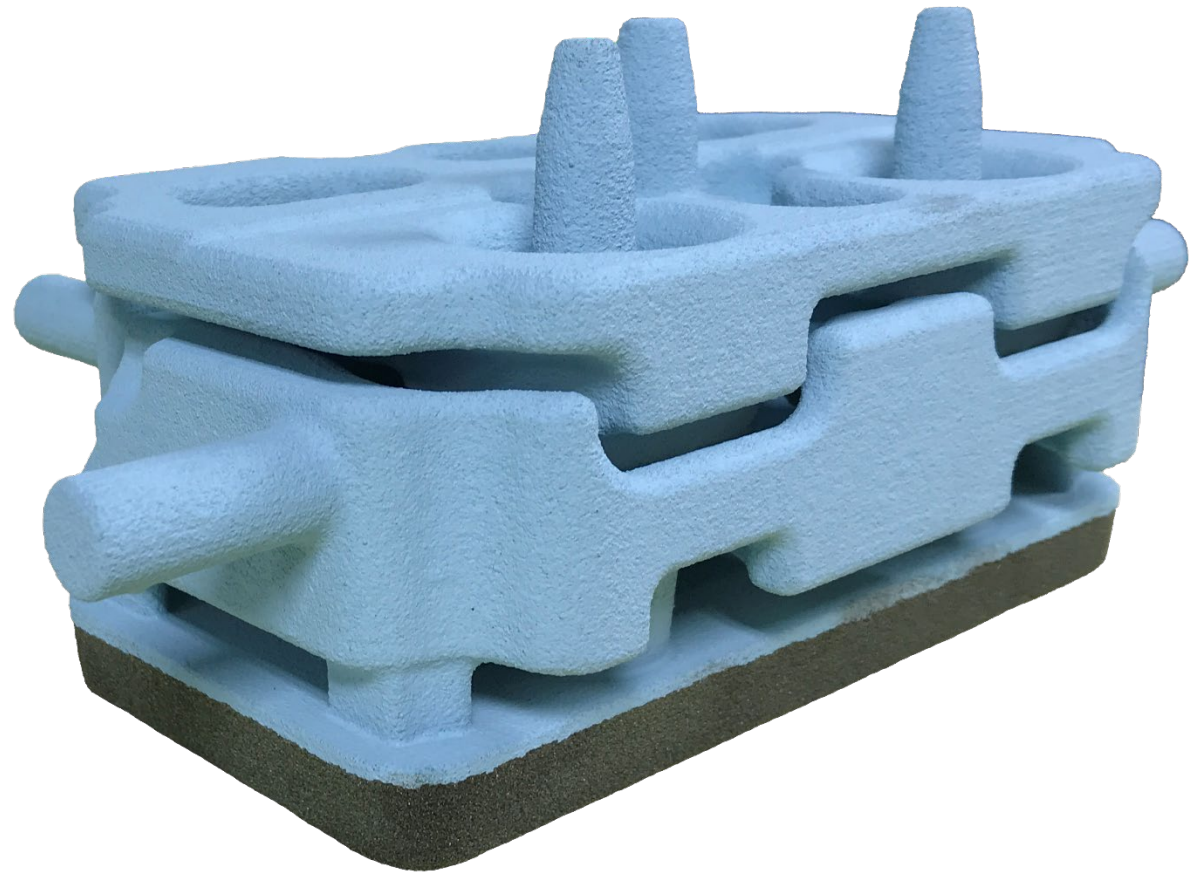
Hybrid Projects

- Can use existing components and only swap out the complex core
- This case the water-jacket needed updated for better cooling
- All other cores were used to keep costs down

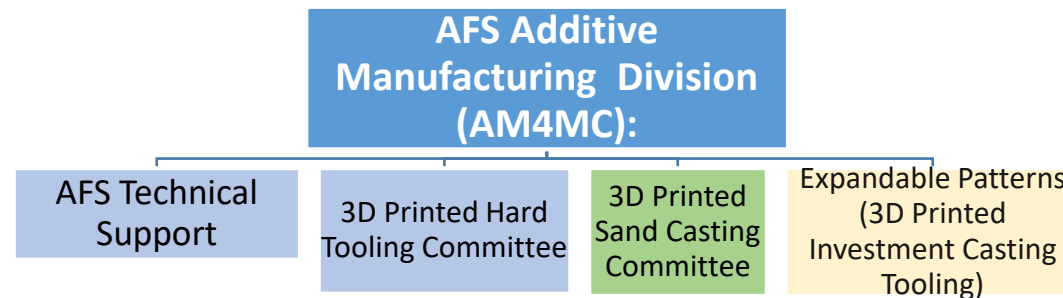


Production Jobs

- 30,000 EAU or more
- Cores Coated and ready to drop in Mold at customer facility
- DISA or Hunter Molding Lines
- Ship on returnable dunnage system to reduce cost
- Can ship with other conventionally blown cores



Domestic Casting Base Tech Enablers





Humtown Wins Manufacturer of the Year!

Have you heard the news? Well if you haven't, let us be the first to shout it from the mountain top (literally)... Humtown was recently selected as the 2020 Manufacturer of the Year by the National Association of Manufacturers (NAM) in the small to medium enterprise category!

In making this selection, NAM's panel of expert judges specifically cited **Humtown's utilization and commercialization of 3D printing**. Humtown has led an industry-wide transformation in bringing 3D printing to foundries, becoming one of the world's leaders in 3D sand additive manufacturing.



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We are the industry's first conventional core manufacturer to commercialize 3D printed sand cores and molds. We are changing the way 3D printing is used in this industry forever. But not only that, it is our vision to help our employees – our "industrial athletes" – reach their full potential and feel valued.

Watch the videos below of Brandon and Mark Lamoncha explaining each of these awards.

AWARD:

**Engineering and Production
Technology Leadership in
Commercialization of 3D Printing
in the Metal Casting Industry**

Brandon Lamoncha

Director of Additive Manufacturing



AWARD:

**Talent Management Leadership
in Unleashing Human
Potential**

Mark Lamoncha

President, CEO

