Cold Metal Fusion printers for ultra-fast manufacturing
AGENDA

- Team background and origins
- Our big pivot
- Progression of manufacturing tech and why Cold Metal Fusion is important
- How the tech works
- Augmented materials are the future
- Applications
  - Embedded electronics
  - Functional Coatings
  - Augmented Materials
- Milestones and Future Financials
TEAM

CO-FOUNDERS

Deepak Atyam – CEO
Alex Finch – President
Jesse Lang – VP Operations
ORIGINS PT. 1
Challenged by NASA to 3D PRINT first rocket engine from a university

2013

2015

2016
PIVOT

Developing new 3D printing technique for rapidly producing rocket engines

Over 250 customer interviews in industry

Market demand too risky
Scope of solution was smaller than expected
STONE AGE
IRON AGE
COLD METAL FUSION
WHAT IS COLD METAL FUSION?

How it works: “spray” metal powder at supersonic speeds = impact & deposition onto substrate

Real time (video)

Slow motion (video)

Stage I: adhesion → 1st layer
Stage II: particle deformation and realignment
Stage III: particle bonding and void reduction
Stage IV: further deformation (hardening …)
HOW COLD METAL FUSION WORKS
EMBEDDED ELECTRONICS

Value Propositions:
• Tamper/counterfeit supply chain
• Direct point sensing of part
• New aesthetic functionality
• EMP shielding
• Increased thermal usage range of electronics
• Electronic erosion protection
• Electronic corrosion protection
• Obtain data at point of interest within part

Market Size (Global IoT Sensors):
• $27.4B by 2022
FUNCTIONAL COATINGS

Value Propositions:
• Part erosion resistance
• Part corrosion resistance
• Structural stiffness at optimized locations
• Increased thermal usage range
• Electrical insulation
• Magnetic insulation

Market Size (Metal Coatings + Functional Coatings)
• $26B by 2026
AUGMENTED MATERIALS FOR OPTIMIZED PARTS

Value Propositions:
• Speed - the fastest method to add metal to any other metal or non-metal part
• Optimized part functionality
• Material cost savings
• Greater design freedom
• Greater aesthetic appeal

Market Size (Global Metal AM):
• $23.3B by 2026
2018
Seed: $1M

- **Tech**: Validate printing technology and start to create parts
- **Sales**: Fulfill 1+ pilot program
- **Team**: Add manf. Engineer, machine learning/controls engineer

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2020
Series A: $10M

- **Tech**: Create parts for customers and 1st full scale printer
- **Sales**: Recurring revenue from part production and/or printer sales
- **Team**: Add CFO, VP product, VP marketing, sales rep, manf. engineer (x2), software engineer (x2)

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2021
Series B: $30M

- **Tech**: Multiple product lines optimized for customer applications
- **Sales**: Established long term production contracts and printer sales pipelines
- **Team**: Add COO, CTO, VP engineering, VP Finance, accountant, HR director, sales rep (x2), sales engineer, industrial engineer (x2), manf engineer (x3), software engineer (x2), materials engineer (x3)

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**MILESTONES/FINANCIALS**

- Jul – 14
  - Phase 1 NASA STTR as RI
- Dec - 16
  - 6th patent application filed
- Feb - 17
  - First paying customer
- Mar - 17
  - Accepted into #1 Aerospace Accelerator (Starburst)
- Aug - 17
  - 1st Patent issued
- Dec - 17
  - Completed NSF I-Corp program
Help us usher in the meltless age for manufacturing
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