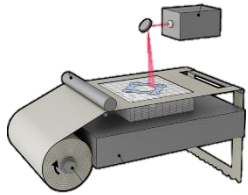# AM UPDATE

Mr. Edward Flinn – Director Advance Manufacturing

1 AUGUST 2019

RIA-JMTC's Journey to Additive Manufacturing

2001

RIA-JMTC adds to AM equipment with polymer capability

BE BOLD

2018

RIA-JMTC is designated CoE for Additive & Advanced Manufacturing

APR 2019

RIA-JMTC achieves Initial Operating Capability (IOC) at CoE

1996

RIA-JMTC acquires first AM technology (LOM)

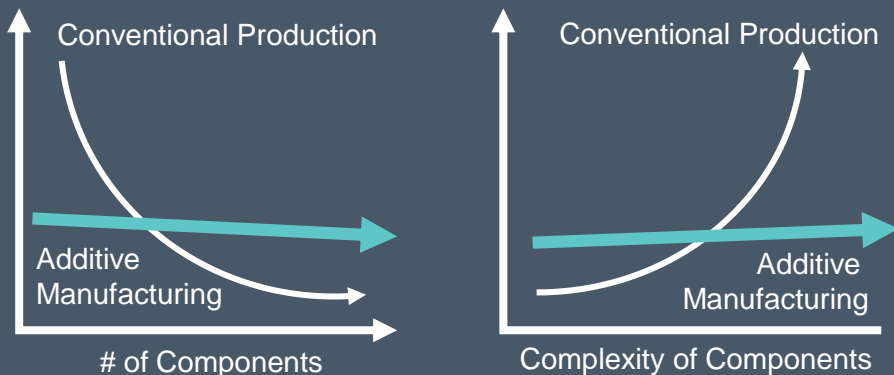**2017**

AMC tells OIB Commanders to "Be Bold"

Advanced Manufacturing Center of Excellence

FEB 2019

First piece of new AM equipment is received by RIA-JMTC

Why Additive Manufacturing?

Conventional Production

Additive Manufacturing

# of Components

Conventional Production

Additive Manufacturing

Complexity of Components

Why RIA-JMTC?

✓ **Supports conventional manufacturing**

✓ **Post-Processing equipment in place**

✓ **Technical expertise in place**

✓ **Low-Volume production environment**

✓ **Under-utilized facility in place (B250)**

✓ **Community engagement & support**

AM Center of Excellence Mission

✓ **Management of AM Across the Army**

✓ **Develop & Maintain AM Data Repository**

✓ **Develop AM Processes for OIB & Operational Army**

✓ **Augment Army Supply Chain Operations**

✓ **Develop & Manage AM Training for OIB**

Army CoE Concept of Support

Phase 1: Immediate Impact Parts

> What parts are readiness drivers?
>
> What parts currently have AM TDP?
>
> What parts can be printed at RIA-JMTC?

Phase 2: Support for Expeditionary AM

Phase 3: Replacement Parts

> Obsolete, Long-Lead, Readiness, no TDP

Phase 4: Optimization of Current Designs

Phase 5: Design for Additive Manufacturing

Army's AM CoE Capability

12 Polymer
8 Metal (3 Due Sept 2019)
2 Reverse Engineering/Inspection
1 Sand (Due Sept 2019)
1 Wax

Advanced Manufacturing
Center of Excellence

Polymer

Fixtures
Models
Prototype
Production
BDAR

Metal

Fixtures
Production
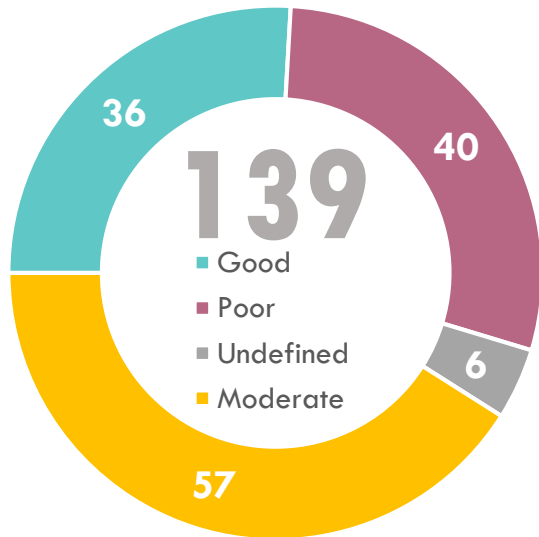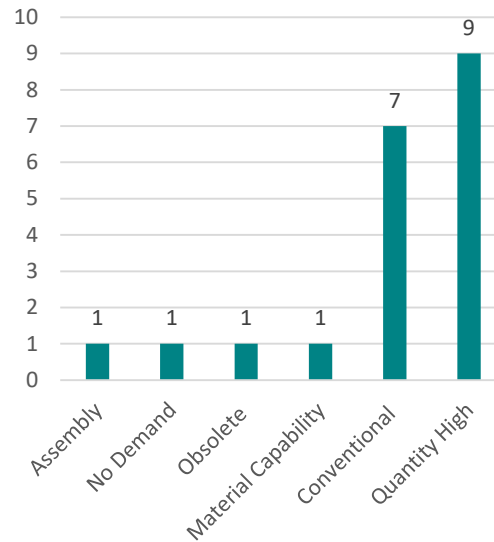OEM Replacement

COMING SOON

Other

Inspection
Reverse Engineering
Cold Spray
Wax Printing
Sand Printing

COMING SOON

Readiness - Modernization - People

Total Inquiries Since IOC

139

- Good: 36
- Poor: 40
- Undefined: 6
- Moderate: 57

Poor Candidates

Category	Count
Assembly	1
No Demand	1
Obsolete	1
Material Capability	1
Conventional	7
Quantity High	9

Candidate Sources

Source	Count
LCMC	78
Unit	25
FORSCOM	10
ASA (ALT)	1
Commercial	6
Internal	6
USN	3
AFC	10

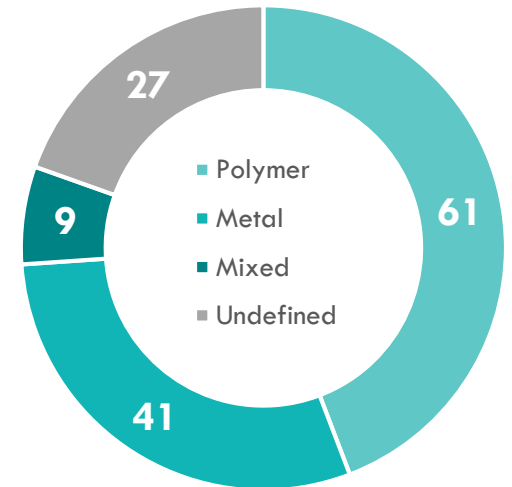## Polymer vs. Metal

- Polymer: 61
- Metal: 41
- Mixed: 9
- Undefined: 27
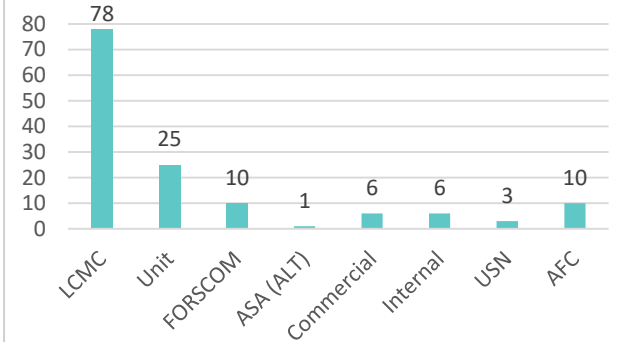
Accomplishments

1. Printed HUSK Door Mechanism Covers
2. Printed HUSK Transmission Switch Plate
3. Funded for Tailfork (casting)
4. Collaboration meeting with John Deere

Operator Training Schedule

JULY

17-20 JUN	8-12 JUL	JUL 15-18
3DS ProX 320 Metal	EOS M290 Metal	MarkForged X7 Polymer

AUGUST

AUG 5-8	AUG 15-18	AUG 20-22	AUG 26-29
Stratasys Esprit Post	Esprit AM	HP4210 Ramp Up Service	Capture 3D

SEPTEMBER

SEP 3-4	TBD
EOS Melt Pool	MarkForged Metal X, MAZAK, DMD

SUCCESSES

CHALLENGES

- Multi Jet Fusion Equipment

- Partnership Opportunities

- Part Inquiries

- Data Overload

- Material Diversity

- Technology Advancement

- No Low Carbon Steel Sets

Questions?

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