Additive Manufacturing Industrialization Through Collaborative Research & Standardization

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Problem Statement

High Quality/Pedigree Data

Consensus-based Standards

Adoption of (AM) Technology

Qualification & Certification

Even more challenging for SMEs

(Limited Access to)

(Slow)

(Insufficient)

(Expensive)

will be briefly covered in this talk
ASTM AM CoE

- ASTM formed Additive Manufacturing Center of Excellence (AM CoE) in 2018

**Mission**

The Center bridges standards development with R&D to better enable efficient development of:

- Standards
- Education and training
- Certification and proficiency testing programs

**Vision**

The Center facilitates collaboration and coordination among government, academia, and industry to:

- Advance AM standardization
- Expand ASTM International's and our partners' capabilities.

ASTM Committee F42 is dedicated to AM and has technical subcommittees focused on the development of consensus-based standards. This is happening in partnership with ISO TC261.

ASTM AM CoE is a collaborative partnership among ASTM and organization representing government, industry, and academia that conducts strategic R&D to advance standards across all aspects of AM in addition to create E&WD and Certification Programs.
Research To Standards (R2S) Initiative

- **7** Rounds of Project Call
- **36** R&D Projects
- **32** Technical Experts
- **27** Organizations

Please feel free to contact AM CoE, if you’re interested in any of the active projects.
What to Focus on?

What are the gaps and needs, with the highest impact and return on investment.

- Gaps
- High Quality/Pedigree Data
- Adoption of (AM) Technology
- Consensus-based Standards
- Qualification & Certification
Various tools and approaches have been developed to gain insights on Research and standardization needs.

Findings have been publicly disseminated through the development of strategic guides and roadmaps.

Led to the formation of Subcommittee F42.08
How About Larger Gaps?

Some gaps and needs may require a much larger funding and multi-organizational collaboration to be addressed.
The AM CoE Industry Consortia, in coordination with members and with input from regulatory agencies, will accelerate adoption of AM technologies through standardization by:

- **BEST PRACTICES & REQUIREMENTS**
  - Data Terminology, Pedigree, Specimen Geometry, Manuf. & Test Plan, Pedigree & Combinability Evaluation

- **GENERATE HIGH-PEDIGREE DATA**
  - Through consortia-funded R&D projects, to drive process-based material specification and material allowable

- **DATA MANAGEMENT STRATEGY**
  - Secure, Member-only Access, Following standard principles (e.g., CDD, CDEF, FAIR*) for data management

- **STANDARD DEVELOPMENT**
  - Transferring lessons learned and consortium approved materials data to standardization committees

Represented by various stakeholders including SMEs
AM CoE CMDS – Data Workstream

STANDARDIZATION

- Standardize, Optimize and Automate Data Workflows
- Data Management, Security, Sharing
- Model Development, Learning
Other Programs (relevant to SMEs)

➢ E&WD
➢ AMQ
➢ Advisory Services
Thank you.