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Attendance

**Members:**

**Mr. Scott Hibbard (Chairman)**
VP Technology
Bosch-Rexroth Corporation - IL
Hoffman Estates, Ill.

**Mr. Randy Gilmore**
Vice President & Chief Technical Officer
National Center for Defense Manufacturing & Machining (NCDMM)
Blairsville, Pa.

**Mr. Douglas (Doug) Watts**
Chief Technical Officer
MAG Automotive, LP
Sterling Heights, Mich.

**Mr. James (Jamie) White**
ManTech Branch Chief
Redstone Arsenal, Ala.

**Mr. Jeff Price**
Executive Vice President
5ME
Cincinnati, Ohio

**Ms. Noel Greis**
President
KINEFAC Corporation

**Benjamin Menz**
Senior Data Scientist
Bosch-Rexroth Corporation - IL
Hoffman Estates, Ill.

**AMT STAFF:**

**Mr. Benjamin Moses (Liaison)**
Technical Director
AMT
McLean, Va.

**GUESTS:**

**Dr. Charles Tuffile**
Additive Manufacturing Research and Technology Center North America
Bosch
Cambridge, Mass.

**Dr. Christopher Martin**
Artificial Intelligence Research and Technology Center North America
Bosch
Pittsburgh, Pa.
Minutes  
Technology Issues Committee  
October 24, 2018

Welcome
The meeting was brought to order at 8:00 a.m. by Mr. Hibbard. Each member introduced themselves. The agenda was reviewed.

Antitrust Statement
Trade associations have long been recognized as serving a valuable, pro-competitive and entirely lawful role in promoting the economic development and consumer welfare of our country. However, serious antitrust problems can arise if a trade association’s activities are not properly conducted. Accordingly, AMT assigns the highest priority to full compliance with both the letter and the spirit of the antitrust laws. It is thus vital that all meetings and activities of the association be conducted in a manner consistent with that policy.

TIC Mission
The Technology Issues Committee acts as the voice of the membership by providing input to the association on member needs in support of AMT’s products and services. The committee works with staff to develop, promote and implement programs and services relating to technology issues facing AMT members. The committee also assists AMT in meeting the objectives of the Board of Directors’ Strategic Plan.

Meeting Minutes
The minutes from the previous meeting were reviewed. Mr. Gilmore motioned the minutes to be accepted, Mr. Ronald seconded the motion, and the minutes were approved.

ARM (Advanced Robotics in Manufacturing Institute) Presentation
Mr. J. Mark Nolan presented an overview of the ARM institute.

Carnegie Mellon Presentation
Mr. Stephen Catt presented an overview of Carnegie Mellon. See attached for presentation.
Generative Design
Topology optimization is generally considered the same thing. Topology optimization is a key enabler for additive manufacturing. The Hackrod project is a good example of this technology (http://hackrod.com/).

Should this process be documented? Assumptions can be documented. Are there applications for machine learning for tool paths and composite lay-up? This technology is useful in support structures. Topology optimization may be used in subtractive manufacturing. Design models need more intelligence to utilize this technology. Aerospace and defense are probably interested in documenting “black box” designs.

Data Available from 5ME
Mr. Price presented data available from Freedom Connect and Web services.

Data Science Discussion
What are the current problems for data analytics in manufacturing? Data overload and lack of use cases. Lofty expectations and return on investment. Data scientist need more domain knowledge and set expectations of what they can do. There are more tools than machine learning and artificial intelligence. Maintenance and continuous improvement have the highest return on investment. In data analysis, it is best to crawl, walk, then run. There is never an “off the shelf” solution; almost all solutions require some level of customization. Data sets should always include data on good parts and bad parts.

Areas of opportunities for AMT:
- Collect use cases from membership and manufacturers
- Techniques and practices to train employees to be “analyst-capable”
- Data lake for manufacturing research

Post IMTS Discussion
The committee discussed their observations from IMTS.

Silicon Valley Discussion
Mr. Hibbard recapped the AMT Board of Directors mission to Silicon Valley.
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AMT Update
Mr. Moses reviewed updates of MT360 and Tech Trends.

Meeting Conclusion and Adjourn
The meeting was concluded and adjourned at 3:20 p.m.

Respectfully submitted,

Benjamin Moses
Staff Liaison