AMMO Additive Manufacturing for Maintenance Operations

Meeting Name	AMMO Workshop – Day 3
Meeting Date	June 25, 2020

Workshop Out brief:
Each breakout session leads provided an overview of the major takeaways from the entire workshop held from June 23, 2020 to June 24, 2020. Highlights from discussions are provided below. For the full list of out brief insights, refer to the workshop materials posted on All Partners Access Network (APAN).

AM Guidebook:

- Identified 19 key topics and 60+ topic statements for the guidebook. The results were placed in the developed "strawman".
    - Inputs from other breakout session groups (e.g., Additive Manufacturing (AM) Part Risk Categorization + Technical Data Package (TDP) Procurement in Sustainment) need to be incorporated.
- A primary owner, along with designated resources, for the guidebook (e.g., office within the Office of the Secretary of Defense (OSD)) need to be identified so the document can continually be updated to reflect current DoD guidance and industry trends.
- Due to approval and review processes prior to publication, the completion date of the guidebook has yet to be determined.

AM Cyber

- It is recommend a separate network be established to monitor security of AM systems. This will help standardize the various throughs on cyber security across the DoD and align with the foreseen trend of AM manufacturing in a software as a service (SaaS) model.
- Additional monitoring regarding a part's quality post processing is recommended to ensure a machine used to produce a part using AM is secure. This will help reduce the need for "continuous monitoring" which can be intrusive and costly.
- An insider threat is a primary concern for parts being produced using AM at this time.
- It is recommended a separate working group be established to look into blockchain's applicability with respect to AM at next year's AMMO conference.

AM Data Management

- Keeping data in its native format is not good enough. This will limit the level of analysis that can be done to develop insights to improve processes.
    - FAIR (findable, accessible, interoperable, and reusable) should be a cornerstone when thinking about data management.
- To improve data management adoption, it is recommended the DoD establish data science trainings and identify how data management can become more integral in part acquisition processes.

AM Workforce Development

- Identified 100+ AM specific roles and mapped them to the existing AM body of knowledge.
- Roles, developed language, and definitions still need to be standardized. Continued collaboration with ManTech and America Makes will help to address this.
- The level of information needed for these roles has yet to be determined. Establishing a central location for the AM body of knowledge will help address this.

AM Metrics

- Critical inputs for AM metrics development include cost, time, yield on investment, system maturity, and performance. Policy around AM contracting will help define time.
- How metrics are calculated still needs to be determined.
- Having a uniform method to identify a part's criticality will help establish metrics for AM processes.

AM Part Risk Categorization + TDP Procurement in Sustainment

- Warfighter readiness is the primary driver at this point for AM part production.
- There is variation as to how manufacturing/supplemental information is captured in TDPs developed.
    - Making TDPs modular will allow for a standard TDP to be more useful across the Military Departments (MILDEPs). Having the ability to select the sections that are included will allow the standard TDP to be better align to the service's current TDP formats and processes.
- Criticality is a major driver for the information provided in a part's TDP. Currently how criticality is determined across MILDEPs varies.
- Terminology when talking about AM needs to be standardized. This will help develop a repeatable process for producing parts using AM.
- Using the Poll Everywhere survey tool allowed for responses from the groups to be recorded in real-time and leveraged to initiate group discussion.
    - The survey results will be posted to APAN within in 30 days from June 25, 2020.