**AM Metrics - Measures of Effectiveness and Measures of Performance**

**For the DOD Guidebook**

**Framing the DOD-Level AM Guidebook**

***AM Metrics - Measures of Effectiveness and Measures of Performance***

**Key Topics**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Categories** | **Topic 1** | **Topic 2** | **Topic 3** | **Notes** |
| Dev. common AMimplementation &outcome metrics | Effectiveness - Track cost, schedule, yield, and weapons system availability. | Capability Maturity - Define a fully mature am system and track progress toward the defined goals. | Performance - Define levels of qualification / certification as well as training for equipment, facilities, material, personnel and processes. Track progress toward the desired thresholds. | Working group weights all these Topics as equal.Generally effectiveness and performance are the most common categories for metrics, but the working group felt it important to include a capability maturity (also can be referenced as the additive manufacturing system's readiness to perform). |
| Deploy methodsto track progress | Cross cutting databases and repositories | Establish goals/thresholds | Qualification / certification standards and specifications |  |

**King for a Day**

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**These represent objectives which we intend to solve through the topics above:**

|  |  |  |
| --- | --- | --- |
|  | Topic | Goal / Statement |
| Dev. common AM implementation & outcome metrics | Effectiveness - Track cost, schedule, yield, and weapons system availability. | Create a set of metrics to evaluate additive manufacturing as compared to traditional through timely and cost effective solutions for a multitude of platforms. Weight cost and time metrics based upon impact to weapons system availability. |
| Capability Maturity - Define a fully mature am system and track progress toward the defined goals. | Create a set of metrics that allows an organization to evaluate their own maturity in establishing an additive manufacturing capability. It can very significantly based on the size and scope of the organization. |
| Performance - Define levels of qualification / certification as well as training for equipment, facilities, material, personnel and processes. Track progress toward the desired thresholds. | Establish a set of metrics that standardize qualification and certification requirements for equipment, facilities, material, personnel and processes in order to maintain a level of AM proficiency. |
| Deploy methods to track progress | Cross cutting databases and repositories | Define a common methodology for calculating part cost and time. Establish databases for holding AM cost and time data.  |
| Establish goals/thresholds | Create a standard checklist/criteria that addresses different required capabilities in the areas of engineering, inventory management, manufacturing, post processing, procurement, and packaging / shipping / delivery. |
| Qualification / certification standards and specifications | Establish and refine qualification / certification standards and specifications for DOD, Industry, and Academia to ensure common application. |

Reference

AM INTEGRATION INTO THE SUPPLY CHAIN.

h. Participate in the development of common AM implementation and outcome metrics and deploy methods to

track progress.