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## **Additive Manufacturing Qualification and Certification for Aerospace and Defense and Space and Missile -- Challenges and Opportunities**

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Interests in Additive Manufacturing (AM) driven by reduced lead time and costs have motivated industry, academia, and government agencies alike to define roadmaps for defining, developing and documenting qualification and certification processes for AM manufacturing. Substantial developments have been made in many aspect of AM and OEMs are flying non-critical AM parts; though, there are areas such as quality and inspections, both for in-processes and post processes and the qualification and certification that offer significant challenges and opportunities. This becomes even more obvious when dealing with numerous different factors including design intent and materials for different applications. For example, commercial applications such as FAA compliance require a different criteria set when compared to defense and space and missile. In addition to design intent and applications, materials, machines, manufacturing practices and man also play critical roles in furthering the understanding of Additive Manufacturing. These, along with other unknown variables, poses challenges and offer opportunities as well to those involved in this discipline to come up with guidelines based on proven data. In this presentation, authors will share his ideas; especially in the areas of in-processes and post processes sensing and NDE and his perspectives on the certification and qualification processes. Inadequate as well as insufficient understanding of certification and qualification will slow the progress and cause delay in the acceptance of AM practices.