

SME Will Introduce iRAMP at RAPID + TCT to Accelerate Adoption of Additive Manufacturing

AFTER DECADES of hype and predictions surrounding additive manufacturing (AM), AM is poised to be on the brink of becoming the disruptive technology that many have long expected. Disruptive technologies are often deemed too costly, less capable, or too niche to replace incumbent technology. But over time, many of these technologies reach a tipping point and rapidly replace these incumbents.

AM is one such disruptor. It may not completely replace subtractive manufacturing, but if AM makes even small inroads into areas that have been historically subtractive realms it will have a huge impact on 21st Century manufacturing.

Well known for producing prototypes and models from plastic and resins, AM has advanced to printing with metal, using different processes, printing at increased speeds, and is capable of larger parts. Mass customization is also driving faster adoption of AM.

AM is already disrupting at the margins. Small-run manufacturing of fixtures and molds, and on-demand spare parts anywhere in the world (including space, as NASA has demonstrated), will prove AM's value to manufacturers. DFAM (design for AM) promises new designs that create forms and functionality beyond subtractive manufacturing capabilities, such as cooling tubes in solid metal parts and lightweighting with lattice structures instead of solid ones. Generative and genetic design can produce unique forms and exotic shapes that have better functionality and use less material. This will accelerate AM's growth.

Interactive RAPID AM Portal (iRAMP)

To accelerate the adoption of AM, a program was created to help manufacturers investigate the right equipment for the right applications—and instill confidence in that information. The Interactive RAPID AM Portal (www.iRAMP.org) will allow manufacturers to query based on their

needs and identify the AM equipment that meets their search parameters.

SME will be the trusted third party among manufacturers and AM equipment providers.

iRAMP will help manufacturers select the right equipment. Machine providers will have the option of offering manufacturers immediate access to relevant information and data sheets about their products. The initial iteration of iRAMP will provide a repository of AM equipment with extensive parameter search capability.

SME will introduce the portal at RAPID + TCT in Detroit next month, and we encourage attendees to test the search capability. Floor markers will indicate where iRAMP kiosks are located. This repository is the basis on which we will build the rest of the iRAMP platform.

iRAMP future

An AM equipment repository with searching ability is a foundational capability for advancing AM adoption. But iRAMP's vision extends beyond that. AM adoption depends on these fundamental questions: "Can I Make It?" (technical feasibility) and "Should I Make It?" (economic feasibility).

Susan Smyth, who recently retired from General Motors, created a framework and methodology for AM called SAM-CT. SAM stands for size, accuracy and material ("Can I make it?"). CT stands for cost and throughput ("Should I make it?"). USCAR verified that the SAM-CT approach is feasible and useful for AM.

The SAM-CT framework will guide the future of iRAMP, building on the iRAMP AM equipment repository and search capability. Based on the AM community's response and feedback, SME will look to add capabilities and other aids to help answer the key questions.

SME will also open iRAMP to encourage community members to add their own apps and materials.

MICHAEL GRIEVES
Executive Director,
The Center for
Advanced
Manufacturing and
Innovative Design,
Florida Institute of
Technology (FIT)