OMIC R&D TECHNOLOGY BOARD
CONCEPTUAL ABSTRACT

OMIC
OREGON MANUFACTURING INNOVATION CENTER
R&D

TITLE: **Development of Cost-Efficient Additive Support Structures Printing and Removal**

RELATED ROAD-MAPPING DESIGNATION ID#: AM3

SUPPORTIVE INDUSTRY: ATI, Blount, Mitsubishi Materials, Sandvik Coromant, Daimler, Sugino.

PROJECT TYPE: General Project – Additive Manufacturing

PROBLEM STATEMENT (What Are We Trying to Solve?): Currently additive software is designed to add supports in unsupported overhangs or in thin areas. The goal of this project would be to develop a method for understanding where support structures are needed in 3d printed parts, what types of structures can be made using minimal material, and can those structures be designed for easy removal. Developing material economic structures that can be easily removed reduces the post processing time of additive manufactured components. Simpler or reduced post processing time allows for automation and other efficiencies that would allow additive to play a larger role in the manufacturing supply chain.

PROJECT DESCRIPTION: Determine at least 3 substantially dissimilar (geometry & material) parts with support structure for printing on a Laser Powder Bed machines: SLM, SLS, DMLS, DMLM, EBM, or similar machines which typically utilize support structures. Define what would be "industry standard" support structures for the part, associated methods of removal, difficulty of removal and time to post process.

Option 1: Develop method and design of support structure for minimal material use and ease of removal. Structure and part interface should be designed minimal post processing after removal.

And / Or

Option 2: Develop a method for current "industry standard" supports to be removed using automation or alternative methods to reduce post processing time.

Identify Related OMIC R&D Resources:

- Renishaw AM400 (not currently at OMIC facility)
- Sugino JCC603 Robo

PROJECT DELIVERABLES:

- Additive support structure design or enhanced methods of structure removal
- Comparison to current industry standards
- All data from tests conducted
- Report and Presentation to OMIC Tech Board