

Southeastern Advanced Machine Tools Network (SEAMTN)

FAQ

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Overview

Led by the University of Tennessee (UT), SEAMTN is a consortium of companies, universities, federal laboratories, non-profit organizations, and the Tennessee state government that seeks to strengthen the US national security manufacturing base by investing in machine tools research and development, education, workforce development, and supply chain support.

Why is SEAMTN being formed?

SEAMTN seeks to facilitate creation of a regional defense manufacturing ecosystem and stimulate regional economic development. The consortium will allow its members to obtain a \$5M grant from the Defense Manufacturing Community Support Program (DMCSP), which is administered by the DoD Office of Local Defense Community Cooperation (formerly the Office of Economic Adjustment). To be eligible, a consortium must be designated as a Defense Manufacturing Community, which is based on a competitive evaluation of proposals submitted to DoD by consortia across the nation. Publication of a request for proposals is anticipated in spring 2021.

Why is SEAMTN focusing on machine tools?

UT and Oak Ridge National Laboratory (ORNL), key SEAMTN partners, have unique expertise, facilities, equipment, and capabilities applicable to machine tools. These tools shape or form parts made of metal, polymers, ceramics, and composites through both material removal (milling, turning, drilling, and grinding) and material addition (wire, powder, or pellet deposition). Machine tools enable prototyping and production operations for most manufactured products—virtually all commercial and defense manufacturers need them. Moreover, in its FY20 Industrial Capabilities Report to Congress, DoD identified machine tools as a critical manufacturing sector that is experiencing declining capacity in the US.

What specifically is SEAMTN proposing to do regarding machine tools?

In cooperation with the America's Cutting Edge program, a DoD Industrial Base Analysis and Sustainment-supported program being executed by the Institute for Advanced Composites Manufacturing Innovation (IACMI), ORNL, and UT, SEAMTN proposes to:

- Address several risks and issues DoD has identified in the machine tool sector, such as costly innovation and a shrinking workforce;
- Develop and deploy technologies that increase productivity and efficiency of current machining operations through data-driven optimization;
- Create novel processes and control algorithms to enable hybrid manufacturing (deposition and removal, either in a sequential or iterative approach) of components with prescribed mechanical properties, geometric tolerances, and surface finish;
- Integrate metrology instruments and digital twin modeling to improve accuracy and throughput for large components; and
- Design and implement a novel training regimen beyond current computer-aided design/computer-aided manufacturing capabilities.

Benefits to Joining SEAMTN

The initial \$5M federal investment will help create a collaborative defense manufacturing network in the southeastern US that will identify current machine tool challenges and develop and deploy technologies and training opportunities to address them while advancing a machine tool ecosystem that includes increased capacity, efficiency, and skilled workforces. Your organization may therefore benefit from SEAMTN through access to:

- A collaborative regional network that can mature, prototype, demonstrate, and facilitate adoption of improved, cost effective machine tool processes and technologies;
- An education/training regimen, designed for your machine tool workforce needs, that enables retraining, upskilling, or continuing education/certification;
- Students and graduates, including military veterans, who are prepared with the necessary skills and knowledge to meet manufacturing job demands; and
- Improved competitiveness for and awareness of DoD commercial and research opportunities.