

May 2019

## ADVANCED MANUFACTURING

### Innovation Institutes Have Demonstrated Initial Accomplishments, but Challenges Remain in Measuring Performance and Ensuring Sustainability

#### Why GAO Did This Study

Manufacturing USA is a national network of manufacturing innovation institutes. Commerce, DOD, and DOE have together provided \$1 billion to establish the network's institutes and to promote research, development, and commercialization of advanced manufacturing technologies.

The Revitalize American Manufacturing and Innovation Act of 2014 includes a provision for GAO to assess the Manufacturing USA program. This is GAO's second report in response to the provision. Among other objectives, this report (1) describes the status of the Manufacturing USA network; (2) evaluates actions taken by Commerce, DOD, and DOE to assess progress of the Manufacturing USA program; and (3) examines planning for institute sustainability beyond the initial 5 to 7 years of federal financial assistance.

GAO reviewed documentation and interviewed agency and Manufacturing USA institute officials, as well as a nongeneralizable sample of seven institute members from different-sized companies and academia.

#### What GAO Recommends

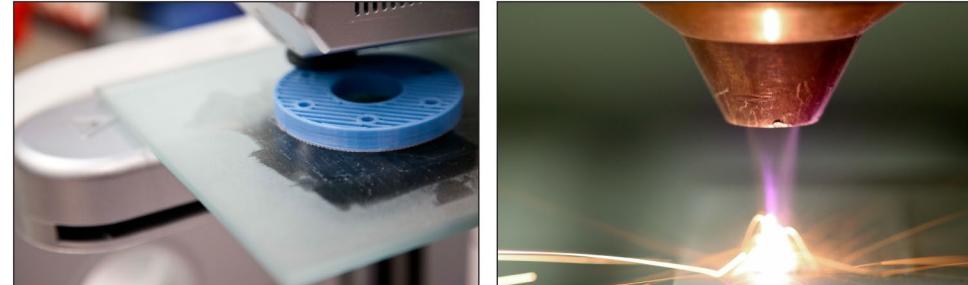
GAO is making five recommendations, including that Commerce work with DOD and DOE to develop performance goals with measurable targets and time frames, and the three agencies develop criteria to evaluate their institutes' sustainability. Commerce requested changes to the performance goals recommendations that would have altered their scope and intent. GAO maintains the recommendations are valid as stated. The three agencies generally agreed with the criteria development recommendations.

View [GAO-19-409](#). For more information, contact John Neumann at (202) 512-6888 or [neumannj@gao.gov](mailto:neumannj@gao.gov).

#### What GAO Found

Since December 2016, the Manufacturing USA network has grown from 11 to 14 manufacturing innovation institutes that are implementing a wide array of activities aimed at developing manufacturing capabilities in promising new advanced technologies, as shown in the figure. As of March 2019, most institutes were operating under an initial 5- to 7-year period of federal financial assistance.

Additive manufacturing (or 3D printing), an example of advanced manufacturing.



Source: Department of Energy. | GAO-19-409

The Department of Commerce, through a national program office, along with the Departments of Defense (DOD) and Energy (DOE) have developed long-term goals for the Manufacturing USA program, such as increasing the competitiveness of U.S. manufacturing, but have not developed measurable near-term goals with associated targets and time frames to assess progress over time. Prior GAO work has shown that systems of performance measures benefit from certain key practices, such as creating a hierarchy that breaks down broad, long-term goals and objectives into more specific, near-term performance goals with measurable targets and time frames. Commerce officials said that they are not in a position to set targets for the network-wide performance measures because they do not manage or fund individual institute activities. However, by developing and implementing network-wide performance goals with targets and time frames, Commerce would have better assurance that it could observe and report on progress toward Manufacturing USA long-term goals and objectives.

Commerce, DOD, and DOE have taken steps to support their institutes' sustainability planning for the years after the initial 5- to 7-year period of federal financial assistance. All 14 institutes have conducted various levels of sustainability planning and foresee generally negative impacts if baseline federal financial assistance ends, such as the need to focus more on short-term projects for industry use rather than projects that advance the manufacturing innovation ecosystem as a whole. However, as of February 2019, while the agencies had taken steps to support institute sustainability planning, they had not developed criteria to evaluate whether the institutes will be able to sustain their operations. Developing criteria for evaluating institutes' progress toward sustainability would provide Commerce, DOD, and DOE greater assurance that decisions about providing additional federal financial assistance for the institutes will be based on an analysis of the risks the institutes face in successfully carrying out the statutory purposes for the Manufacturing USA program.