

Expanding Additive Manufacturing in Maryland

RAMP MD

The logo for RAMP MD features the text 'RAMP MD' in a bold, sans-serif font. The 'RAMP' is in black, and the 'MD' is in a vibrant green. Below the text is a decorative graphic consisting of a series of orange dots that form a horizontal line, which then tapers into a red arrow pointing to the right. The background of the logo area has faint green lines and circles, suggesting a technical or manufacturing theme.

What is Additive Manufacturing?

Process of joining materials to make objects from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing methodologies, such as traditional machining.

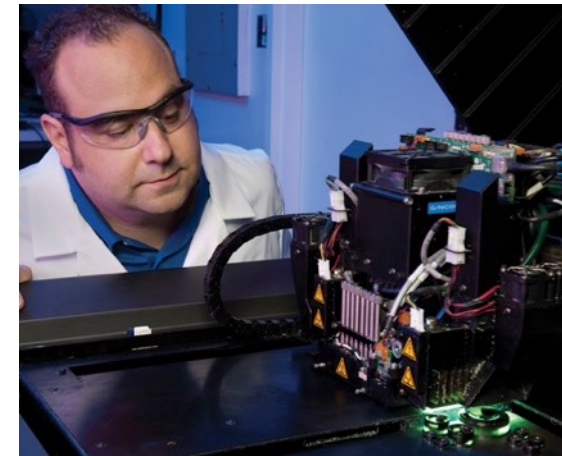
Additive Manufacturing Encompasses:

- 3D Printing
- Rapid Prototyping
- Rapid Manufacturing
- Just in time
- Digital manufacturing
- Additive fabrication



Design

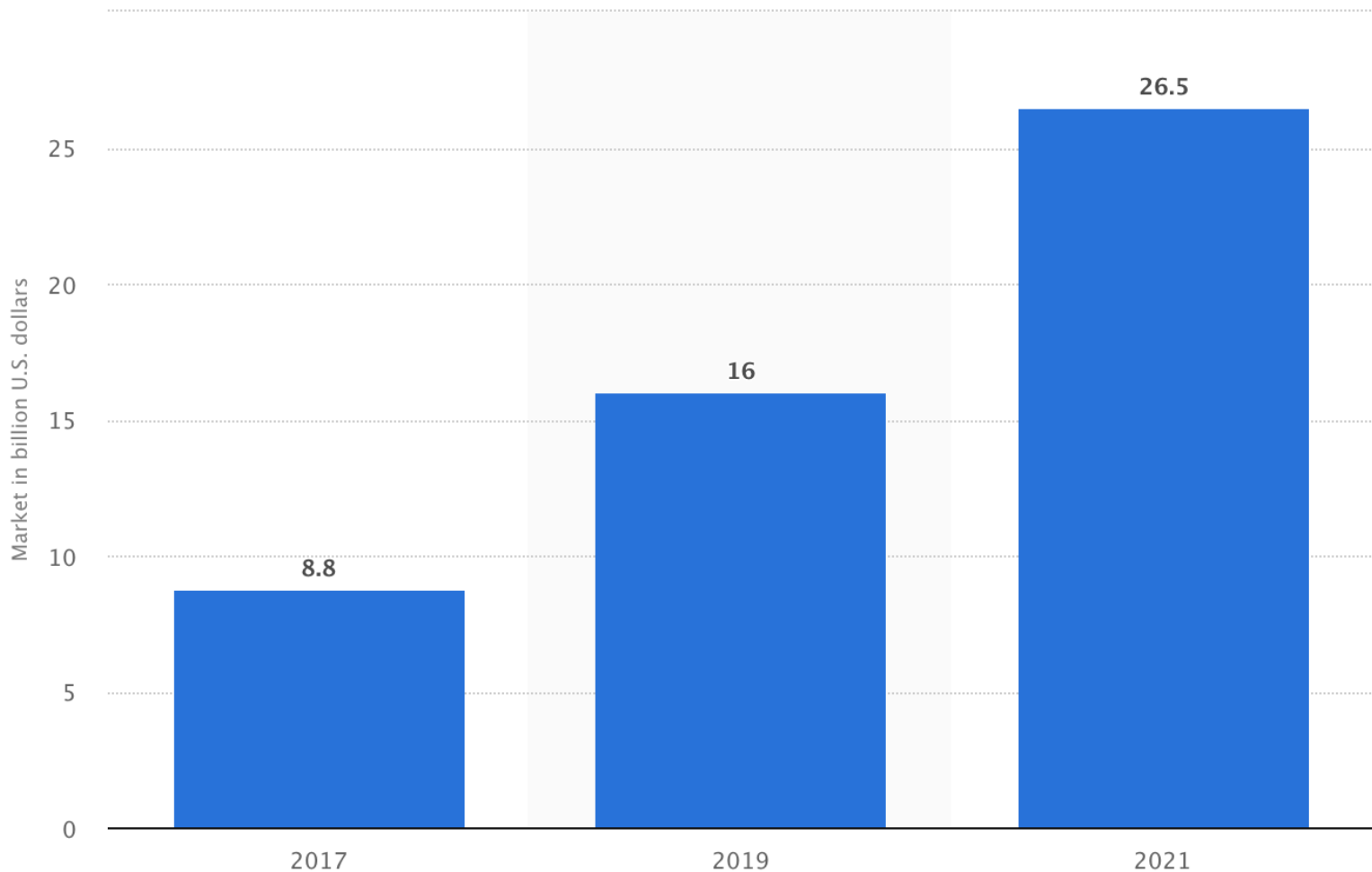
Print



Prototype

Growing industry sector

This statistic shows the value of the additive manufacturing - more commonly known as 3D printing - market from 2017 to 2021. It is estimated that this industry will be sized at around 26.5 billion U.S. dollars in 2021. Source: Statista





RAMP MD Formed in 2014



- 2014SB889 RAMP MD Established
- 2016 SSB882 RAMP MD Expanded
- Both bills passed unanimously

RAMPMD's Mission

Expand workforce by developing apprenticeship programs

- **Seek out new JWS holders from across Mid-Atlantic to come to Maryland**
- **Work with manufacturers to adopt AM**
- **Further streamline transactions**
- **Establish incubator on-site at APG**

Construct Educational Pathways

Raise Visibility of AM Capabilities

- Host quarterly cross-industry Symposia
- State-wide communications campaign
- Meetings and tech showcases with key industry leaders

Build Partnerships with Business

Expand Resources for Industry

- Develop coalitions and partnerships
- Pursue federal grants
- Create investor programs

Transformational Technology

- Additive poised to transform product development and manufacturing
- Price-Waterhouse Cooper reports that 71% of manufacturers are now using additive technologies
- Barriers for expanded use
 - Hardware/software (speed & cost)
 - Materials
 - Education and Workforce

Today's Agenda

- Technology developments in additive manufacturing
- Business Roundtable Discussion
- Q&A