How advanced manufacturing is helping U.S. companies compete globally.

AdvancedManufacturing.org
Advanced manufacturing is transforming everything about the way we make things in America. The technological advances that drive manufacturing today are drastically changing the way products are developed, produced, shipped and sold.

The impact of advanced manufacturing reaches far beyond the shop floor. With higher quality products, lower costs and streamlined operations, U.S. manufacturing is more globally competitive than ever before. Innovative technologies have galvanized the resurgence of manufacturing in the U.S. and the reshoring of overseas outsourcing.

We wanted to learn how companies are using advanced manufacturing to remain competitive. In May of 2014, Manufacturing Engineering surveyed a cross-section of manufacturing executives, engineers and managers from the SME database (publication readers, trade show attendees, and members). In all, 618 U.S. manufacturers responded to our 20-question survey. On the following pages, you will find highlights of the survey findings.

Demographics
Respondents are primarily corporate management (50%) or engineers (27%).
Respondents represent a wide range of company sizes. 51% are small companies (1-49 employees), 31% are medium-size companies, (50-499), and 22% are large manufacturers (500+).
Respondents personally influence the purchase of an average of four (4) Advanced Manufacturing technologies.
Respondents’ companies serve an average of three (3) manufacturing segments, led by Fabricated Metal Products (43%), Aerospace & Defense (42%), and Automobile/Truck (35%).

Methodology
618 U.S. manufacturers participated in the online survey
Sample size 37,730
The survey was conducted from April – May 2014
The survey consisted of 20 multiple-choice, rating and differential scale questions. Survey candidates were selected from SME’s professional manufacturing database, which included engineers, supervisors and executives. The database is populated primarily with Manufacturing Engineering subscribers, SME event attendees, and patrons of SME professional services.

Respondents also indicated
20% Electrical Equipment/Appliances/Components
19% Primary Metal Products
19% Transportation Equipment
15% Computer and Electronics
14% Plastics and Rubber
8% Advanced Materials
8% Chemical Manufacturing

* Expenditures toward Advanced Manufacturing capabilities over the next two fiscal years (2014-15)
How many people are employed in your company, including all sites, offices, and locations?

- 1-19: 37%
- 20-49: 14%
- 50-249: 18%
- 250-499: 8%
- 500-999: 5%
- 1000-2499: 6%
- 2500+: 11%

Respondents also ranked:
- 33% Advanced Materials
- 33% Advanced Forming
- 20% Flexible Electronics
- 13% Nano-Manufacturing
- 4% Bio-Manufacturing/Bioinformatics

*Expenditures toward Advanced Manufacturing capabilities over the next two fiscal years (2014-15)*
What is driving the need for your company to make Advanced Manufacturing improvements? (Multiple responses allowed)

- Develop Competitive Advantage: 66%
- Grow Business Opportunities: 65%
- Improve Production Efficiencies: 64%
- Adapt to Customer Needs: 57%
- Improve Quality: 57%
- Stimulate Innovation: 31%

Despite respondents identifying these six strategies as keys to their success, their responses to a follow-up question show a wide gap (23%-51%) in those strategies being implemented “Exemplary” or “Significant Strengths”.

Manufacturers who reported that their company was doing a significant or exemplary job implementing those strategies:

- Customer-focused innovation: 35%
- Process improvement: 26%
- Workforce development/training: 17%
- Sustainability: 16%
- Supply chain management: 15%
- Global engagement: 16%
How have your Advanced Manufacturing investments improved overall performance?

- **37%** Improved Product Quality/Reliability
- **33%** Improved Production Speed
- **31%** Lowered Production Costs
- **31%** Not Consistent to Current Business Strategy
- **30%** Improved Product Complexity/Performance
- **36%** Insufficient ROI
- **32%** Lack of Technical Skills
- **52%** Lack of Funding

If your company is not making these improvements, what are the reasons? (Multiple answers allowed)

- **49%** of small-sized manufacturers surveyed plan to spend $100-299k toward Advanced Manufacturing.
- **24%** of large-sized manufacturers surveyed plan to spend $5 million or more toward Advanced Manufacturing.

53% of respondents plan to invest in Advanced Manufacturing technologies in the next two years.

Advanced Manufacturing Expenditures

What are your company’s planned expenditures toward Advanced Manufacturing capabilities during the next two years?

- **Small-Sized Manufacturers** (1-49 employees):
  - 49%
  - 26%
  - 7%
  - 5%
  - 13%

- **Medium-Sized Manufacturers** (50-499 employees):
  - 24%
  - 4%
  - 5%
  - 33%
  - 22%

- **Large-Sized Manufacturers** (500-2,500+ employees):
  - 4%
  - 4%
  - 21%
  - 15%
  - 30%

38% of respondents said they were “not sure” of their companies’ planned expenditures for the next two years and were omitted from the results provided on this page.
Respondents personally influence the purchase of about four Advanced Manufacturing products and services.

Which of the following do you recommend, specify or approve? (Multiple responses allowed)

- 49% Industrial Robotics
- 42% Advanced Sensing, Measurement and Process Control
- 42% Additive Manufacturing
- 35% Sustainable Manufacturing
- 33% Advanced Forming
- 33% Advanced Material Design
- 69% Advanced Manufacturing Equipment
- 52% Advanced Software

In developing your company’s Advanced Manufacturing expertise, how valuable do you find the following information sources/media content platforms?

- 46% Industry Events/Trade Shows
- 45% Websites
- 36% Magazines/Trade Publications
- 35% Conferences
- 33% Videos
- 29% Webinars
- 25% E-Learning/Online Training
- 25% White Papers

Respondents also indicated:
- 16% E-Books
- 16% Scholarly Journals
- 12% eNewsletters
- 10% Forums/Chat Rooms
- 7% Social Media/Blogs

SME supports the manufacturing industry with networking, training and content.