



## Top 8 Manufacturing Trends for

# »» 2023

### OPPORTUNITIES FOR MANUFACTURERS: LEVERAGE RESOURCES

While inflation, geopolitical turmoil, technological change and economic pressures weigh on the industry, manufacturers continue to pursue new opportunities to bolster resilience, agility and growth. These top eight trends compiled from member surveys, studies and feedback are affecting manufacturing organizations across critical operations. Find curated resources from the NAM, the NAM's Operational Solutions, the Manufacturing Leadership Council, the Innovation Research Interchange and the Manufacturing Institute.



## 1. Advanced and Emerging Technology

Artificial Intelligence | Automation | Analytics

### THE TREND:

Manufacturers are accelerating the pace of investments in advanced or emerging technologies, such as artificial intelligence, virtual reality, machine learning, digital twins and threads and data analytics. Automation and robotics are viable solutions to keep production running, and this will require hiring more skilled employees and continuing to train existing workers. With the talent shortage, this continues to be a challenge. Digital technologies also present significant opportunities to enhance efficiencies, increase resilience and improve the bottom line. New technologies are also being used to generate top-line growth by accelerating innovation and providing the data necessary to create new products and business models.

## HOW NEW TECH AFFECTS MANUFACTURERS

- ✓ New and emerging tech can increase efficiency, reduce costs, improve quality and provide visibility into the supply chain.
- ✓ Digital twins and digital threads can alleviate some supply chain challenges.
- ✓ Adopting advanced technologies is a strategy to boost resilience against future disruption.
- ✓ Artificial intelligence and other Manufacturing 4.0 technologies are key components of future sustainability initiatives.
- ✓ A people-centric approach to digital transformation ensures manufacturers have a workforce that is prepared to thrive alongside robots and automation.
- ✓ Sophisticated analytics are necessary to maximize intelligence from the ever-expanding dataset that new technologies enable.
- ✓ Sensors and data lakes have also made possible a shift toward advanced services business models and “voice of data” product development.



## RESOURCES

### MANUFACTURING LEADERSHIP COUNCIL

The NAM's digital transformation division, the Manufacturing Leadership Council offers connections, insights and strategies to help manufacturing leaders survive and thrive with the latest advanced technologies.

[Learn more >](#)

### INNOVATION RESEARCH INTERCHANGE

The NAM's newest division drives impactful innovation and is a leader in helping companies customize, implement and scale innovation for bottom-line results.

[Learn more >](#)

### MANUFACTURING IN 2030 PROJECT

Participate in this ongoing project from the Manufacturing Leadership Council to look into the future of manufacturing so you can prepare for what lies ahead.

[Learn more >](#)

### IN-PERSON AND VIRTUAL EVENTS

Attend virtual and in-person plant tours to see the latest digital manufacturing technologies in action. Participate in Rethink: The Manufacturing Leadership Council Summit to gain best practices necessary to succeed in your journey to M4.0.

[Learn more >](#)

### DIGITAL TRANSFORMATION COMMUNITY

Join the Innovation Research Interchange Digitalization Community—organizations that are using digital technologies to enhance and evolve their innovation and R&D practices. Join for case studies and white papers, interviews with thought leaders and facilitated roundtables and view presentations from the Digital Futures Conference.

[Learn more >](#)

### LEADING EDGE SMARTBRIEF

Keep up with trends in manufacturing tech, IoT, cybersecurity, sustainability, workforce and what other companies are doing with a quick daily e-summary.

[Subscribe >](#)



## 2. Supply Chain Resilience

Delays | Shortages | Costs



### THE TREND:

Supply chain challenges that began in 2020 continue even as the COVID-19 pandemic wanes. These are also driven by factors such as the labor shortage, strong demand, logistics challenges and transportation issues. As manufacturers face long lead times, increased costs and a scarcity of raw materials, they are taking steps to boost supply chain resilience through reshoring, cybersecurity, increased supplier pools and more.

### HOW SUPPLY CHAIN CHALLENGES AFFECT MANUFACTURERS

- ✓ Delays, shortages, cost increases, port gridlocks and other disruptions continue to plague manufacturers.
- ✓ The need for semiconductors currently outweighs supply, leading to the demand to bring more creation to the U.S.
- ✓ Reshoring is gaining traction as a supply chain resilience strategy.
- ✓ Expanding the supplier pool and/or finding suppliers closer to your facility can contribute to supply chain resilience.
- ✓ An increased reliance on R&D can mitigate supply chain risk in three ways: risk management, supplier qualification and through design for substitution.
- ✓ Allies and partners are key components of an effective and efficient supply chain strategy.
- ✓ A cyber breach at any point along your supply chain can cause significant financial harm to your business and/or shut you down completely.





## RESOURCES

### CONNEX MARKETPLACE

Use this searchable database to reduce dependence on distant suppliers and do business with more manufacturers in the U.S.

**Learn more >**

### NAM CYBER COVER

If even one point in your supply chain has a weak cybersecurity posture, your entire business and reputation could suffer the consequences of an attack. Protect your business with cyber insurance and risk mitigation and encourage your partners to do the same.

**Learn more >**

### CASE STUDY: JOHNSON & JOHNSON'S AWARD-WINNING SUPPLY CHAIN SMART FACTORY

Learn how Johnson & Johnson successfully piloted a scalable smart factory strategy to modernize operations and transform how digital capabilities are incorporated.

**Learn more >**

### NAM'S SUPPLY CHAIN HUB

Browse a collection of webinars, studies and policy action blueprints as the NAM continues its engagement on supply chain issues.

**Learn more >**





### 3. Talent Disruptions and Opportunities

Labor Shortage | Skills Gap | Untapped Talent



#### **THE TREND:**

The manufacturing industry continues to suffer from an unprecedented labor crisis that has no end in sight. Causes include retirement, outdated perception of the industry, unclear roles as a result of digitization, outdated recruitment practices and COVID-19. Manufacturers are working to combat the talent shortage and close the skills gap through training, technology, enhanced benefits, better pay, improved culture and untapped talent pools.



## HOW TALENT DISRUPTIONS AND OPPORTUNITIES AFFECT MANUFACTURERS

- ✓ Innovative new solutions across manufacturing organizations continue to bolster recruitment, upskilling and retention.
- ✓ Manufacturers are increasingly engaged in efforts to improve perceptions of modern manufacturing, which includes Manufacturing 4.0 technologies, such as robotics and automation.
- ✓ Incentives are available to manufacturers for job creation and employee training.
- ✓ Upskilling and cross-training your existing workforce can alleviate some workforce issues.
- ✓ Creating an inclusive culture where all are encouraged to contribute and share ideas can increase employee retention and attract fresh talent.
- ✓ Better benefits and better pay are keys to talent acquisition and retention. One study conducted by the NAM's Innovation Research Interchange showed the starting salary for a computer scientist increased 100% over the past year.



## RESOURCES

### NAM MANUFACTURERS RETIREMENT 401(K) AND SAVINGS PLAN

Help your employees feel secure and reassured that they can retire when ready, while reducing the amount of time, hours and money spent managing your retirement plan.

**Learn more >**

### INNOVATION MANAGEMENT WORKSHOPS

Virtual workshops from the NAM's Innovation Research Interchange can help you hone your leadership skills to better manage innovative and creative teams.

**Learn more >**

### THE MANUFACTURING INSTITUTE

The Manufacturing Institute, the 501(c)3 nonprofit workforce development and education partner of the NAM, builds, diversifies and strengthens the modern manufacturing workforce, with the goal of furthering individual opportunity, community prosperity and a more competitive manufacturing industry.

Tap into the MI to access a talent pool of highly skilled women, military veterans, students and resources:

- > **Creators Wanted**
- > **Women MAKE America**
- > **Federation for Advanced Manufacturing Education (FAME)**
- > **MFG Day**
- > **Heroes MAKE America**





## 4. Cybersecurity

Insurance | Risk Mitigation | Supply Chain



### THE TREND:

The year 2023 will see manufacturers more organized and focused on cybersecurity. While the frequency of ransomware attacks has decreased slightly, manufacturers must stay vigilant against this and other threats. Cyber insurance has gone from a “nice to have” to a “must have”—both to protect your own business and to prove you are a reliable partner to customers. Manufacturers should be on the lookout for potential new cybersecurity reporting requirements that could take effect in the near future.

### HOW CYBERSECURITY AFFECTS MANUFACTURERS

- ✔ Manufacturers can take steps to reduce risk and eliminate some attacks altogether through best practices, such as proactive monitoring, employee training and network segmentation.
- ✔ Cyberattacks present unique threats to manufacturers in addition to financial damage. These include safety hazards, production downtime, loss of reputation and damage to customer relationships.
- ✔ Manufacturers are at an elevated risk of cyberattacks due to their use of IT and IoT systems. Companies large and small are potential targets.
- ✔ Proposed legislation could require some manufacturers to report cyberattacks within 72 hours of an incident.
- ✔ Employee training on ransomware, phishing attempts, wire fraud and other incidents can reduce the frequency and severity of data breaches and cyberattacks.
- ✔ Today's cyber climate will require suppliers and other industry partners to protect their businesses with cyber insurance.





## RESOURCES

### CYBER RISK ASSESSMENT

Take the NAM's complimentary cyber risk assessment to learn your cyber risk level. Simply answer a few brief questions to receive a detailed report that identifies vulnerabilities in key areas and provides recommendations to strengthen cyber posture.

**Take the assessment >**

### NAM CYBER COVER

NAM Cyber Cover is designed to meet the unique cybersecurity needs of manufacturers. It includes cyber insurance with proactive monitoring and risk mitigation tools to protect your business.

**Learn more >**

### MANUFACTURING EXECUTIVES DISCUSS OT BEST PRACTICES

Leading manufacturers shared best practices on how they are implementing OT cybersecurity defenses and what it takes to gain buy-in across organizations.

**Watch video >**

### MANUFACTURERS ARE GETTING TOUGH ON CYBERSECURITY

More companies are taking a disciplined approach to the growing threat of cyberattacks, according to a new cybersecurity survey from the Manufacturing Leadership Council.

**Read more >**



## 5. Post-Pandemic Growth and Expansion

More Space | Increased Headcount | Facility Improvements



### THE TREND:

While the risk of a downturn in 2023 remains significant, manufacturers have continued to invest in their futures in the months since the start of the pandemic, particularly in productivity-enhancing technologies and intellectual property products, with an eye on increasing capacity to meet demand. Projects must balance capital expenditures with potential ROI. Incentives and tax credits early in the process can be key to project viability.

## HOW POST-PANDEMIC GROWTH AND EXPANSION AFFECT MANUFACTURERS

- ✓ More than \$80 billion in government incentives are available to businesses in the U.S. annually.
- ✓ In addition to site selection, incentives are available for facility expansion, equipment upgrades, employee training and more.
- ✓ Adopting Manufacturing 4.0 technologies pays dividends in the long run through increased capabilities and improved efficiencies.
- ✓ To stay competitive, manufacturers should look ahead to the year 2030 when considering improvements, upgrades and workforce needs.
- ✓ Mergers and acquisitions remain a hot topic as manufacturers rethink their operations following the pandemic. Savvy manufacturers are ready for buying opportunities.
- ✓ Sustainability is an essential part of the conversation regarding growth and expansion.



## RESOURCES

### NAM INCENTIVES LOCATOR

Discover funds, tax credits and other incentives your company might qualify for when you expand your operations or purchase new equipment. With the NAM Incentives Locator, you can have an expert identify opportunities and manage the entire process for you.

**Learn more >**

### OPERATIONAL SOLUTIONS PRODUCTS AND PROGRAMS

Discover time- and money-saving programs from the NAM that can help you maximize efficiencies, reduce costs and streamline your operations so you can focus on growing your business.

**Download >**

### NETWORK WITH MANUFACTURING LEADERS

Stay in the know about potential acquisition opportunities. Join the Manufacturing Leadership Council to connect with a global business leadership network of senior manufacturing executives.

**Learn more >**

### INPUT

The NAM's morning newsletter delivers exclusive insights while keeping manufacturers informed on policy and business developments as well as the NAM's activities.

**Learn more >**

### POWER OF SMALL

The NAM's exclusive resource network for small and medium-sized manufacturers provides access to trusted advisers and delivers intel and analysis on advocacy, workforce development, legal action, operational excellence and news focused on supporting manufacturers' long-term success.

**Learn more >**





## 6. Tough Economic Outlook

Inflation | Recession Predictions | Supply Chain Impacts



### THE TREND:

Despite some improvements, inflation remains elevated and there is talk of a recession on the horizon. The tough economic situation means manufacturers must look for cost efficiencies as they navigate increased costs and supply chain challenges. Not-so-quick fixes include reexamining just-in-time manufacturing and the cost of warehousing, product and material substitutions and alternative transportation methods.

### HOW A TOUGH ECONOMY AFFECTS MANUFACTURERS

- ✔ Just-in-time manufacturing can increase efficiency and reduce inventory costs. However, it requires reliable production, quality, equipment and suppliers.
- ✔ Incentives and tax credits can offset some of the financial hardships brought on by inflation.
- ✔ Energy-efficiency upgrades can reduce one of manufacturers' largest operating costs. Programs such as on-bill funding enable upgrades with little or no upfront capital.
- ✔ Workers also experience financial hardships during a tough economy. Benefits that include 401(k) plans and financial wellness resources can allay fears and aid employee retention.
- ✔ An expanded supplier pool gives manufacturers more options for materials, substitutions, competitive pricing and speed of delivery.
- ✔ Saving money on routine expenses, such as energy, shipping and health care coverage, can alleviate some financial pressures of a recession.
- ✔ Manufacturers increase their commitment to product development to better prepare for economic upturns and beat the competition to new market opportunities.
- ✔ Severe cyberattacks during a down economy can put some manufacturers out of business.





## RESOURCES

### NAM SHIPPING

Get significant discounts on shipping and freight, including 50% off UPS Air, 30% off UPS Ground and 75% off LTL Freight. Plus, you can call on a shipping expert to answer questions about bills of lading, freight calculations, insurance and more.

**Learn more >**

### NAM ENERGY

Connect with an energy adviser who can help you explore energy upgrades, lock in competitive rates and gain visibility into your energy usage.

**Learn more >**

### INNOVATION COFFEE HOUSES

Join an Innovation Research Interchange Coffee House—monthly virtual conversations with innovation leaders—to share top-of-mind challenges with your peers.

**Learn more >**

### NAM MANUFACTURERS RETIREMENT 401(K) AND SAVINGS PLAN

Help your employees feel secure and reassured that they can retire when ready, while reducing the amount of time, hours and money spent managing your own retirement plan.

**Learn more >**







## 7. Sustainability

Net Zero | Renewable Energy | Regulations



### THE TREND:

More manufacturing companies are setting goals to reduce carbon emissions not just to be good citizens but also to prolong the life of their business due to finite resources. In addition to the sustainability of production methods, manufacturers must also consider the environmental impact of their products. As investors are increasingly looking at environmental, social and governance goals and regulations and reporting requirements both in the U.S. and globally may potentially change, sustainability could become an imperative sooner than later.



## How Sustainability Affects Manufacturers

- ✓ Particularly in the tech and electronics sectors, manufacturers are looking at ways to extend product lifecycles to provide greener and more profitable end-of-life solutions.
- ✓ Renewable energy solutions, such as solar power, battery storage and LED lighting, contribute to sustainability while saving money. Programs from utility companies and other entities enable efficiency upgrades with little or no upfront capital.
- ✓ Advanced manufacturing technologies can increase efficiencies and propel manufacturers toward net-zero goals.
- ✓ Employees want to know their company is doing the right thing for the environment.
- ✓ Many sustainability projects make good business sense, as they generate savings or new revenue streams that improve manufacturers' bottom lines.



## RESOURCES

### INNOVATING FOR SUSTAINABILITY

Discover the business and societal benefits of innovating with sustainability in mind. Plus, gain resources that can help make your processes and outputs more sustainable.

[Learn more >](#)

### RETHINKING END-OF-LIFE TECHNOLOGY VALUE

Learn how manufacturers are becoming more thoughtful about end-of-life processes and the detrimental impact those may have on the environment.

[Learn more >](#)

### NAM ENERGY

Connect with an energy adviser who can help you explore technology solutions, such as solar power and battery storage, to improve sustainability and resilience while reducing costs.

[Learn more >](#)

### DIGITAL SOLUTIONS DRIVE SUSTAINABILITY IN MANUFACTURING

Discover how manufacturing companies that successfully transform to contribute to global sustainability will positively enhance their own ability to thrive.

[Learn more >](#)



## 8. Roadmap to Manufacturing in 2030

Leadership | Technology | Operational Excellence



### THE TREND:

Once abstract concepts, digitalization and Industry 4.0 are coming into sharper focus as manufacturers accelerate their adoption of new technologies. Savvy manufacturers are looking at the decade ahead to create a roadmap to Manufacturing in 2030. This trend is driven by many factors, including post-pandemic resilience improvements, the needs for cost-savings in a tough economy, supply constraints, the labor shortage and more.

### HOW A ROADMAP TO MANUFACTURING IN 2030 AFFECTS MANUFACTURERS

- ✓ Global megatrends that will impact manufacturing by 2030 include population growth, the rise of a new middle class, persistent worker shortages, climate change and increased interconnectivity.
- ✓ Becoming a factory of the future can help manufacturers reduce costs, increase efficiency, improve quality and gain visibility into the supply chain.
- ✓ Manufacturers that look to the future are better equipped to compete on a global level.
- ✓ Artificial intelligence will be one of the most important strategic considerations for manufacturing companies, the industry and the U.S. in the years ahead.





## RESOURCES

### INNOVATION RESEARCH INTERCHANGE

Connect with a network of R&D leaders to advance the field of innovation and accelerate value creation.

[Learn more >](#)

### MANUFACTURING LEADERSHIP AWARDS

Nominate employees for the Manufacturing Leadership Awards and attend the awards gala to join the ranks of the most innovative manufacturers working today.

[Learn more >](#)

### MANUFACTURING IN 2030 SURVEY: A LENS ON THE FUTURE

See what 260 manufacturing executives said about the challenges, innovations and trends that will shape our industry in the near future. Review the findings of the MLC's latest Manufacturing in 2030 Survey for details.

[Learn more >](#)

### THE NEXT PHASE OF DIGITAL EVOLUTION

Learn how manufacturing leaders can better plan their long-term future and find ways to enhance their value, competitiveness and contribution to society.

[Download >](#)

### NAM LEGAL REFERRAL SERVICE POWERED BY MERITAS

Access world-class attorneys from top, full-service law firms to help answer questions on a comprehensive spectrum of legal issues, from contracts, labor and employment and environmental compliance concerns to product safety, trade and intellectual property. Contact us now for a personal introduction to a qualified law firm and a 30-minute courtesy advice call.

[Learn more >](#)



› [nam.org](http://nam.org)

## OPERATIONAL SOLUTIONS

**Valued. Trusted. Connected.**

Working to help improve manufacturers' bottom line

[operationalsolutions.nam.org](http://operationalsolutions.nam.org)

**NAM CYBER COVER** 

Cyber insurance and risk mitigation for manufacturers

**NAM HEALTH CARE** 

**NAM ENERGY** 

powered by APPI Energy

**NAM INCENTIVES LOCATOR** 

powered by ATLAS Insight

**NAM MANUFACTURERS RETIREMENT** 

401(k) & Savings Plan

**NAM SHIPPING & LOGISTICS** 

Small Parcel and Supply Chain Solutions

**CONNEX**  
**marketplace**  
Connecting the Manufacturing Supply Chain

**LEADING EDGE SmartBrief**  
NAM'S SOURCE FOR THE LATEST IN MANUFACTURING

### Input

The NAM's morning newsletter delivers exclusive insights while keeping manufacturers informed on policy and business developments as well as the NAM's activities.

### Power of Small

The NAM's exclusive resource network for small and medium-sized manufacturers provides access to trusted advisers and delivers intel and analysis on advocacy, workforce development, legal action, operational excellence and news focused on supporting manufacturers' long-term success.