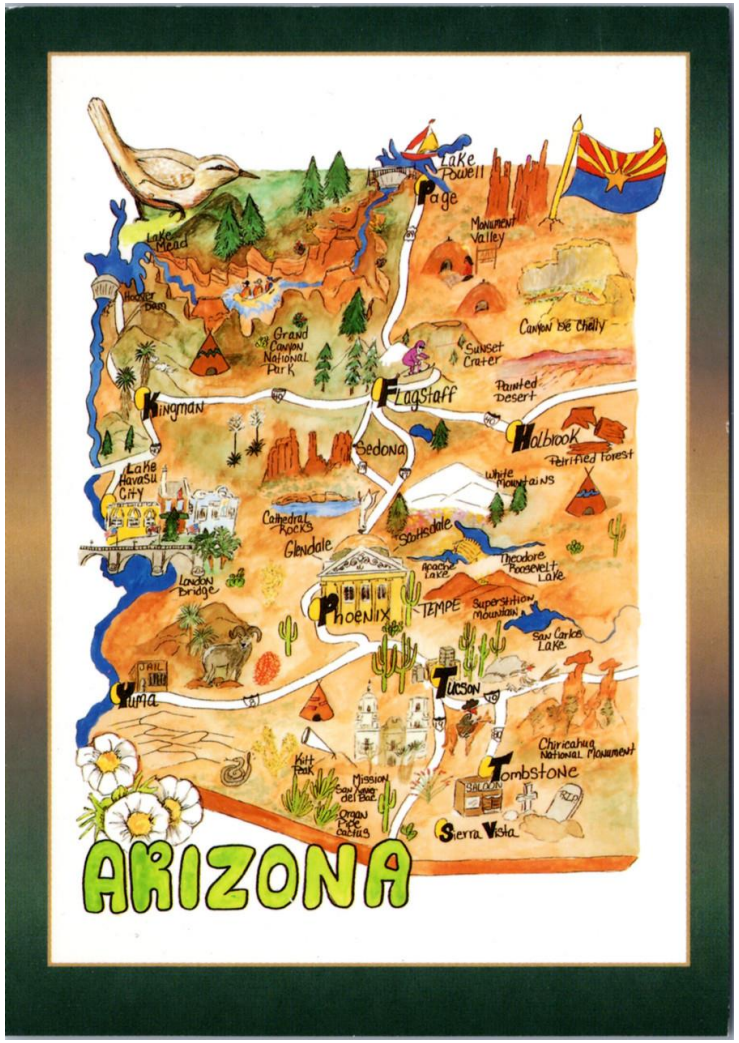
Made in the USA: Why Arizona is the New Manufacturing Hub/Capital



INTRODUCTION

- Presentation Theme: Made in the USA: Why Arizona is the New Manufacturing Hub/Capital

- Date: November 03, 2023

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  - SCORE Certified Mentor

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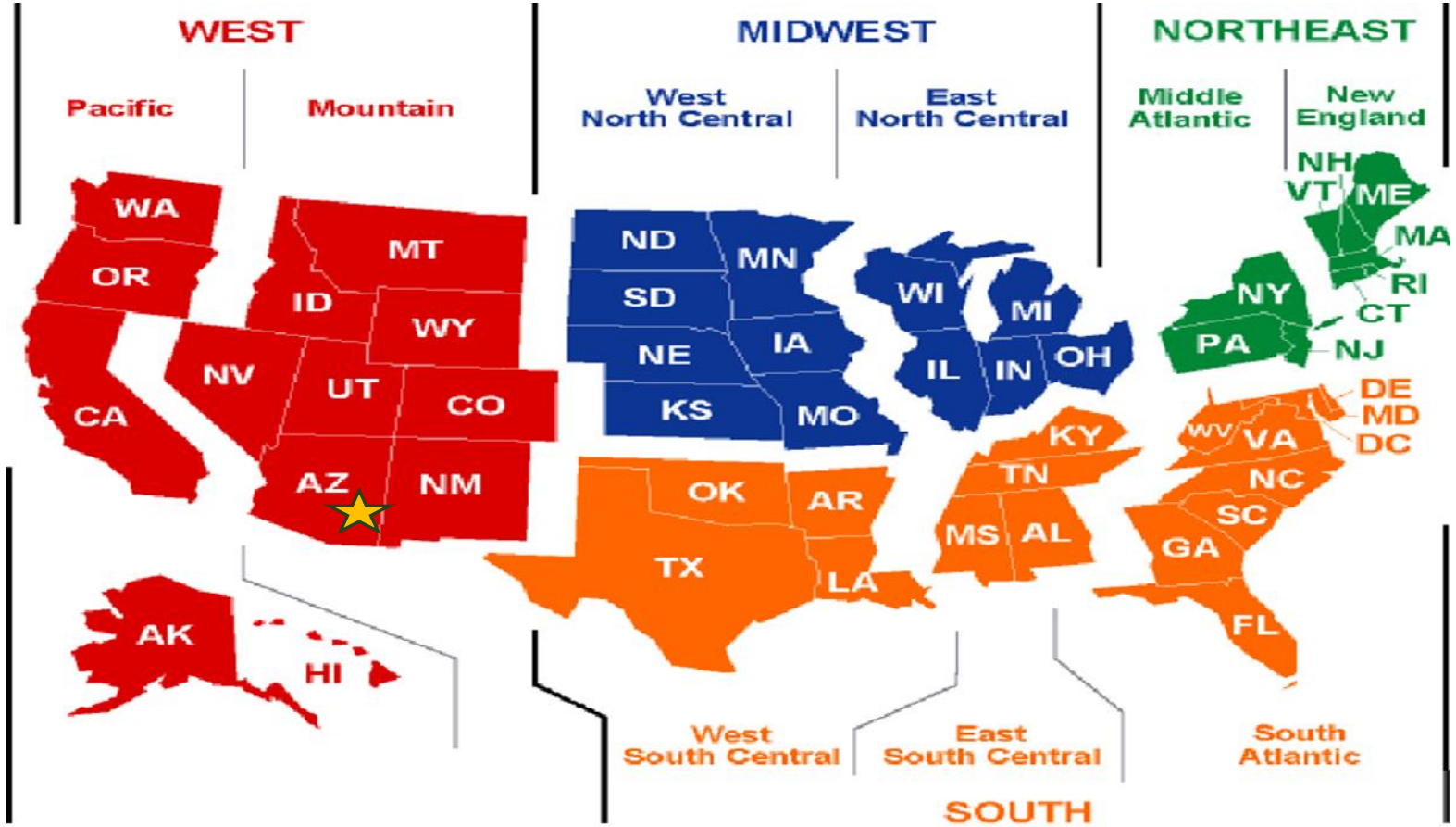
MANUFACTURING REGIONS OF THE USA



CURRENT TOP 2023 MANUFACTURING TRENDS

1. **Increased adoption** of automation and robotics

2. **Growth of additive manufacturing** (3D printing)

3. **Sustainability initiatives** (Environmental, Social, & Governance)

4. **Advanced materials -** New advanced materials like composites, nanomaterials, and smart fabrics enable lighter, stronger, and higher performance products.

5. **Digital transformation** - Manufacturers are utilizing connected, data-driven technologies like IoT, AI, and cloud computing to optimize production.

CURRENT MANUFACTURING TRENDS

7. **Supply chain optimization** - Companies are streamlining their supply chains for greater efficiency, visibility, and flexibility through strategies like nearshoring.

7. **On & Near shoring** - Manufacturing products in/near USA rather than overseas to reduce costs and risks.

8. **Skills gap closing** - Training programs and apprenticeships are being created to develop the skilled manufacturing workforce required for Industry 4.0.

9. **Cybersecurity investments** - Data and system security is a priority as manufacturing operations become more digital.

10. **Advanced manufacturing (4.0)** - High-tech smart factories focused on customization, digitization, efficiency, and rapid prototyping through technologies like robotics, 3D printing, and AI.

TOP 5 MAIN REASONS ON WHY AZ !

- **Favorable Tax Incentives** - Arizona offers tax breaks and credits for job creation, research & development, and capital investments.
- **Lower Operating Costs** - The cost of doing business in Arizona is lower than many other states, especially in terms of real estate, construction, utilities, and wages.
- **Reduced Regulations** - Arizona has a regulatory environment that is business-friendly.
- **Skilled Workforce** - A growing pool of skilled talent is available, thanks to Arizona's investments in vocational training and university engineering programs.
- **Excellent Logistics Infrastructure** - Distribution and transport of raw materials and finished goods is easier for Arizona-based manufacturing with well-connected airports, railroads, highways and proximity to major ports.

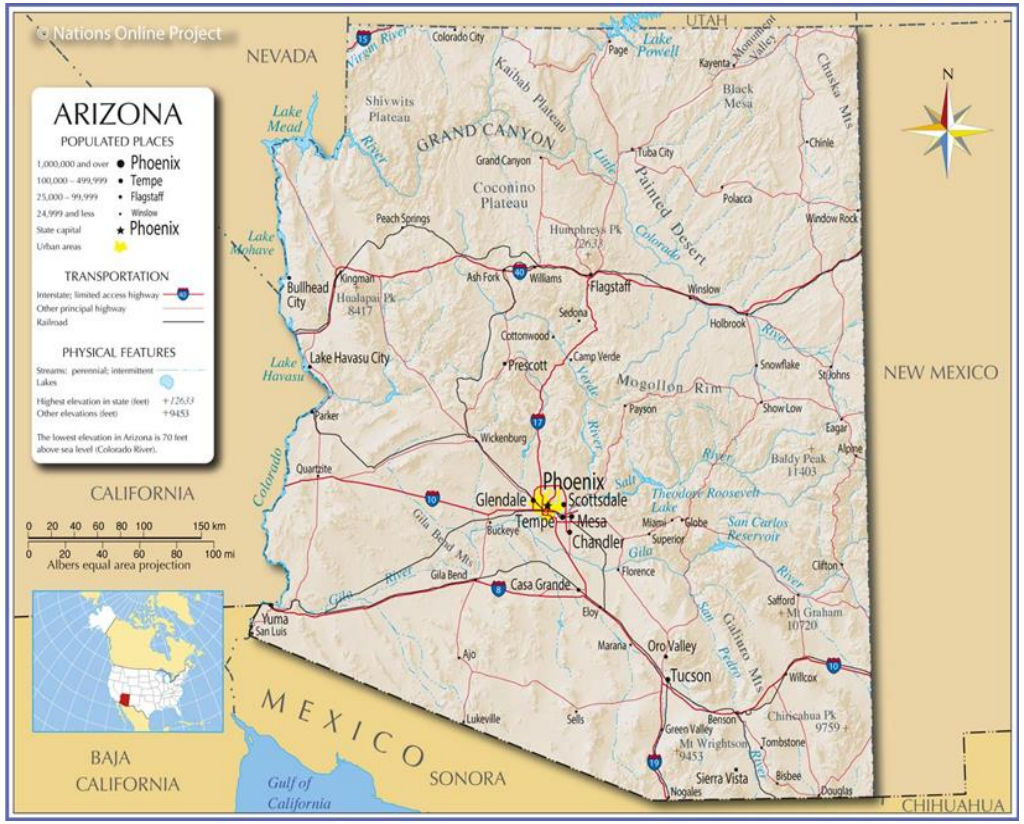
ARIZONA: A MANUFACTURING HUB FOR THE 21st CENTURY

Process of converting raw materials, components, or other inputs into finished goods through various physical, mechanical, chemical, or biological processes. It encompasses a wide range of industries and activities that involve the creation, assembly, or production of products for commercial purposes.

- **Aerospace Manufacturing:** NAICS Code: 3364
- **Electronics and Semiconductor Manufacturing:** NAICS Code: 334413
- **Food Processing and Manufacturing:** NAICS Code: Various
- **Metal Fabrication and Machinery Manufacturing:** NAICS Code: Various
- **Medical Device Manufacturing:** NAICS Code: 339112
- **Textile and Apparel Manufacturing:** NAICS Code: Various
- **Plastics and Rubber Manufacturing:** NAICS Code: Various
- **Wood Product Manufacturing:** NAICS Code: Various
- **Chemical Manufacturing:** NAICS Code: Various
- **Printing and Publishing:** NAICS Code: Various

AZ MANUFACTURING DEMOGRAPHICS

- **Greater Phoenix metro area**
- **Tucson**
- **Yuma**
- **Flagstaff**
- **Prescott**
- Outside of the major metro areas, smaller towns like Kingman, Bullhead City, Lake Havasu City, and Sierra Vista have light manufacturing largely related to serving local needs.



ECONOMIC IMPACT TO AZ

- **Manufacturing GDP:** Projected to grow to **$24.5 billion in 2023, up 4.7%** from 2021 based on recent growth trends. (Source: Arizona Office of Economic Opportunity)
- **Employment:** Estimated around **183,000 manufacturing jobs in AZ by end of 2023, an increase of 3%** from 2022. (Source: Arizona Office of Economic Opportunity)
- **Wages:** Average annual manufacturing **wages estimated at $71,500 for 2023, up 3.5%** from 2021 average. (Source: Bureau of Labor Statistics wage growth projections)
- **Exports:** Arizona's total exports projected to reach $22 billion in 2023, with manufacturing exports **growing at over 5% year-over-year.** (Source: US Chamber of Commerce trade forecasts)
- **Investment:** **Over $2.5 billion in new manufacturing investments announced for Arizona in 2023** so far, indicating continued expansion. (Source: Arizona Commerce Authority project reports)

ISSUES & SOLUTIONS FOR MANUFACTURERS

- **Skilled labor** - Provide internal training and development programs, offer competitive wages and benefits to attract and retain workers.
- **Supply chain disruptions** - Diversify suppliers so all eggs aren't in one basket, build relationships with backups, increase stock of key materials.
- **New technologies** - Research solutions appropriate for your size and budget, start small with pilot projects, leverage lease/finance options to spread out costs.
- **Access to capital** - Maintain solid financial records and projections to demonstrate creditworthiness to lenders, improve cash flow management.

ISSUES & SOLUTIONS FOR MANUFACTURERS

- **Compliance costs** - Proactively stay on top of emerging regulations, implement systems to document compliance.
- **Cybersecurity** - Use strong passwords and access controls, back up data regularly, install firewalls and antivirus software, train employees on threats.
- **Sustainability** - Seek energy/waste audits to identify savings opportunities, switch to LED lighting, optimize heating/cooling, improve packaging efficiency.
- **Exports** - Consult with 3PL/4PL logistics firms and legal counsel to navigate trade regulations & insurance to mitigate risks.

AI & MANUFACTURING (OPPORTUNITY AREAS)

- **Predictive maintenance** - AI can analyze data from sensors on equipment to predict when maintenance is needed before breakdowns occur. This improves uptime and reduces costs.
- **Quality control** - Computer vision AI can automatically inspect products on the production line for defects, eliminating the need for human inspectors.
- **Inventory optimization** - AI algorithms can forecast demand more accurately and optimize stock levels and reorder points to avoid overstocking.
- **Scheduling optimization** - AI can generate efficient schedules for production runs and material deliveries to maximize output and minimize changeover time.
- **Robotics** - Smart robots assisted by AI can take over repetitive and dangerous jobs on the factory floor to improve safety and free up human workers.
- **Design automation** - Generative design AI can suggest design tweaks to products to reduce material waste, improve manufacturability, etc.
- **Predicting customer needs** - By analyzing past sales data and customer interactions, AI can help predict customer needs and demand for new products.
- **Personalized marketing** - AI tools can help create targeted marketing campaigns for individual customers based on their unique interests and needs.

PATH TO SUCCESSFULLY ADOPT AI

1. **Start small** - Focus on a single pain point or process to automate.
2. **Get employee buy-in** - Involve staff early and get them comfortable with how AI will impact their roles.
3. **Set measurable goals** - Identify clear metrics. Track results rigorously.
4. **Use affordable solutions** - Many AI applications have become economical options. Leverage these.
5. **Integrate into operations** - Ensure any AI system integrates into existing operational processes and workflows.
6. **Start with pilot projects** - Run controlled pilots first to test AI systems before scaling up.
7. **Expand use cases** - Once successful with initial applications, identify additional ways to apply AI.
8. **Evaluate frequently** - Keep assessing the business and operational impact of AI models frequently.
9. **Build internal skills** - Train in-house teams on AI best practices to ensure models are managed and improved properly over time.

CHIPS & SCIENCE ACT OVERVIEW

- Full Name: Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act
- Passed by US Congress in July 2022 and signed into law by President Biden.
- Aims to boost domestic semiconductor manufacturing in the US.
- Provides $52 billion in subsidies and incentives for US chip manufacturing.
- Also includes $200 billion for scientific research to boost US technology and compete with China.
- Funds the creation of regional technology hubs across the US for semiconductor R&D and manufacturing.

COMMUNITY RESOURCES

- Arizona Commerce Authority - https://www.azcommerce.com/
- Arizona Manufacturers Council - https://www.azmanufacturerscouncil.org/
- Arizona Manufacturing Extension Partnership - https://amep.az.gov/
- Community colleges:
  - Mesa Community College - https://www.mesacc.edu/
  - Central Arizona College - https://www.centralaz.edu/
  - Pima Community College - https://www.pima.edu/
- Arizona Technology Council - https://www.aztechcouncil.org/
- Greater Phoenix Economic Council - https://www.gpec.org/
- SCORE Phoenix - https://phoenix.score.org/
- Arizona Chamber of Commerce - https://www.azchamber.com/
- Small Business Development Centers - https://www.azsbdc.net/

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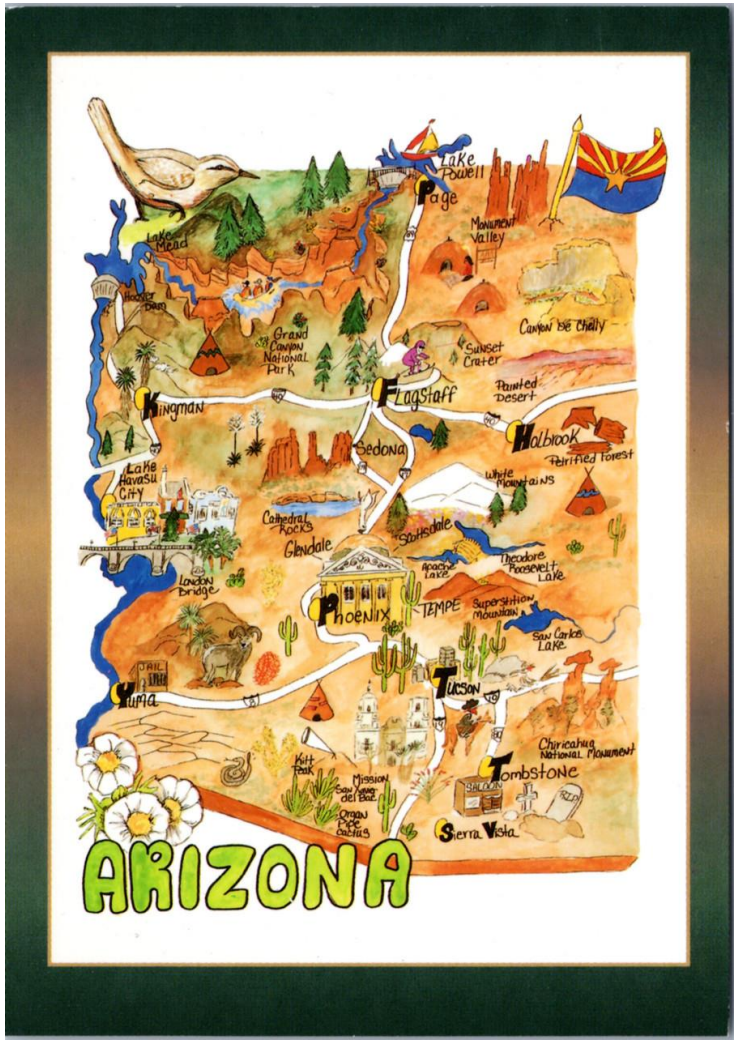

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Focus: Order to Cash for Business , Supply Chain, Advanced Manufacturing, and Technology Innovation (ERP / AI)