

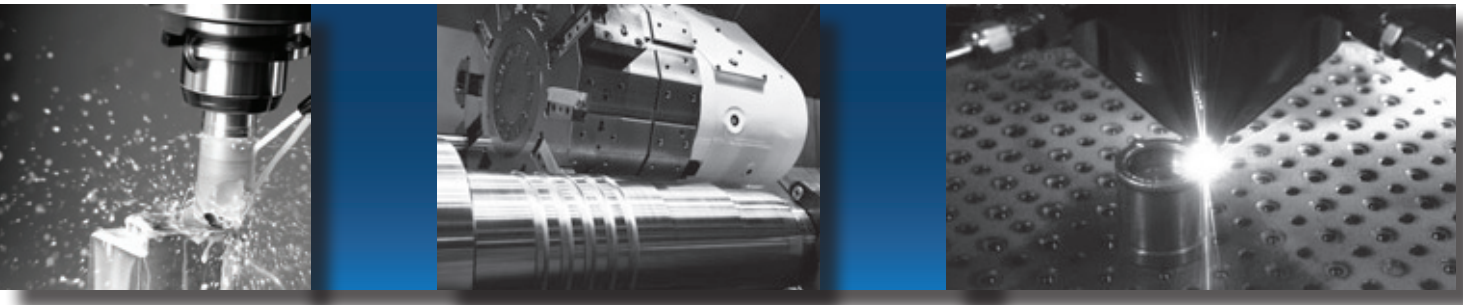


# THE MANUFACTURING MANDATE

Key to American  
Economic Power

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## WHY A MANUFACTURING MANDATE?

It's been almost three years since AMT introduced the Manufacturing Mandate. In that time, the landscape has changed considerably for American manufacturing. Led by a strong manufacturing technology industry, manufacturing has been the force behind our current economic recovery.

Since the recession, manufacturing technology orders have soared as manufacturers modernize their equipment, expand their facilities and upgrade their manufacturing processes. These are the keys to manufacturing's strength. Today, American manufacturers are more efficient, more productive, more innovative and more prepared than ever to take on their global competitors. To accelerate and sustain this resurgence, the federal government needs to implement a data-driven, results-focused national manufacturing strategy.

Policymakers, industry leaders and academia agree on the major aspects of a strategy. They are consistent with the Manufacturing Mandate core principles of incentivizing R&D and innovation; increasing global competitiveness and building a Smartforce that is equipped with the knowledge and skills necessary for careers in manufacturing. Emphasis on utilization of existing resources; greater coordination of government manufacturing programs and services; and increased collaboration among stakeholders are fundamental to its execution. Bold action on tough issues is critical to its success.

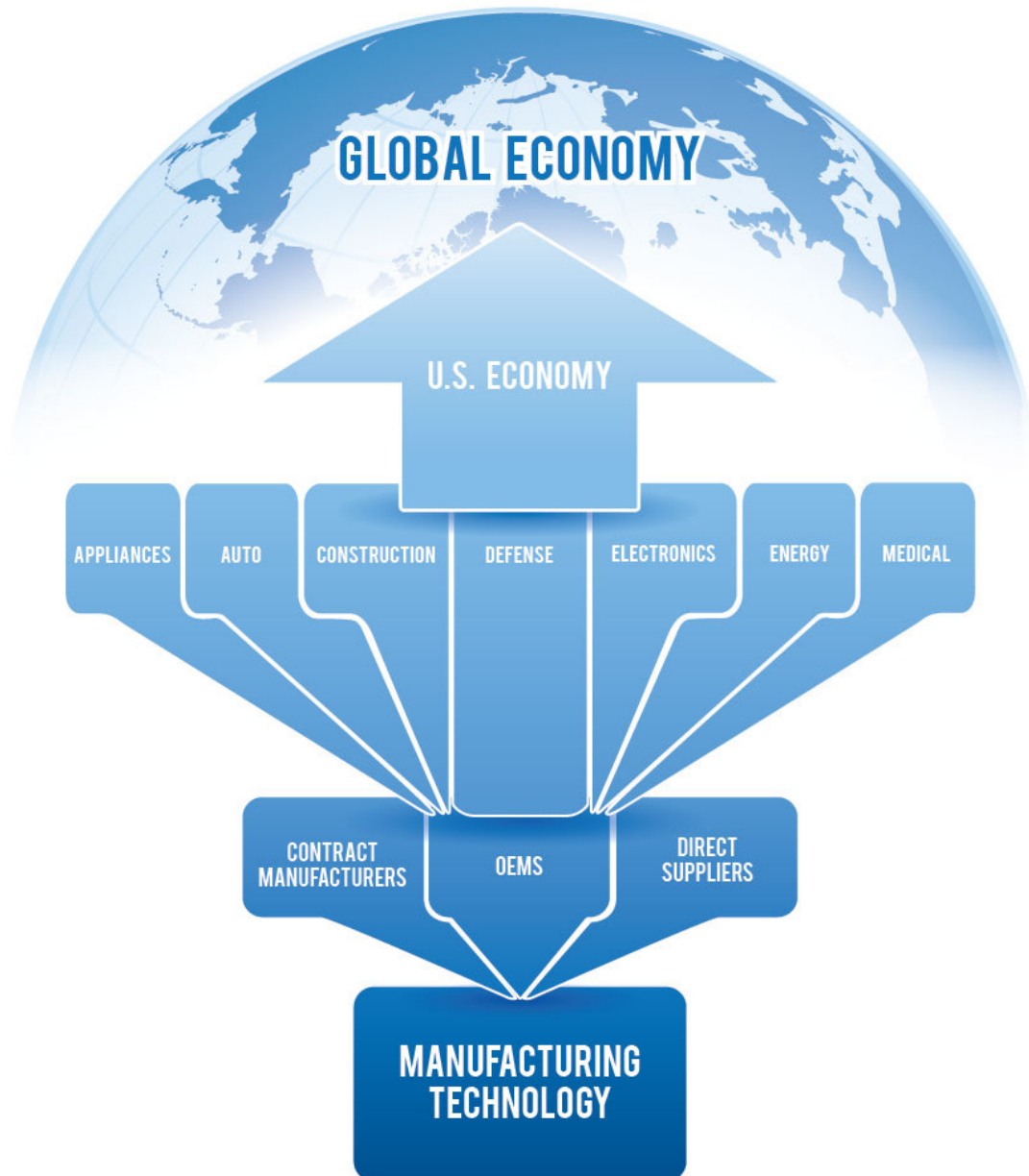
AMT's Manufacturing Mandate demands national attention to the challenges and opportunities of today's globalized world. It is a prescription for building manufacturing strength and job creation and is ultimately the key to American economic power.

Douglas K. Woods

President

AMT - The Association For Manufacturing Technology

# THE IMPORTANCE OF MANUFACTURING TECHNOLOGY TO THE OVERALL ECONOMY



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AMT members provide crucial **manufacturing technology** equipment and solutions to all other industrial sectors of the economy.

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# FOCUS ON INNOVATION IN MANUFACTURING

- Manufacturing has driven knowledge production and innovation in the United States by supporting two thirds of private sector R&D and by employing scientists, engineers and technicians to invent and produce new products (*Ensuring American Leadership in Advanced Manufacturing*, President's Council of Advisors on Science and Technology PCAST, 2011)
- Manufacturing contributes disproportionately to U.S. innovation. Proximity to the manufacturing process creates innovation spillovers across firms and industries, leading to ideas and capabilities that support the next generation of products and processes (*Capturing Domestic Competitive Advantage in Advanced Manufacturing*, PCAST, 2012)
- In 2009, manufacturing domestic business R&D spending in the United States reached \$195 billion, accounting for 70 percent of all domestic business R&D performed in the United States. (National Science Foundation InfoBrief, March 2012)
- The issue of co-location of R&D and manufacturing is especially important because it means the value-added from both R&D and manufacturing will accrue to the innovating economy, at least when the technology is in its formative stages. (*The Technology Imperative*, Gregory Tasse, Northampton, MA: Edward Elgar, 2007)



Innovation is the key to business success, job creation and sustainable economic growth. A weakened manufacturing sector means a diminished ability to innovate. The United States needs a result-oriented national manufacturing strategy focused on incentivizing innovation in new products and manufacturing technologies.

# FOCUS ON INCREASING GLOBAL COMPETITIVENESS



- Manufacturers contributed \$1.7 trillion to the U.S. economy in 2010 and account for nearly 60 percent of all U.S. exports. (U.S. Bureau of Economic Analysis, 2011)



- The reshoring of manufacturing, combined with increased exports due to improved U.S. competitiveness, will directly and indirectly create 2,000,000 to 3,000,000 jobs in the United States. (*U.S. Manufacturing Nears the Tipping Point*, Boston Consulting Group, 2012)

- With manufacturing playing such a vital role in the economic health of a country, a country must, in turn, play a key role in building an environment in which manufacturing can thrive. (*2010 Global Manufacturing Competitiveness Index*, Deloitte and U.S. Council on Competitiveness)



- U.S. manufacturers face a 20 percent structural cost burden in the global market compared to nine major trading partners. (*2011 Structural Cost Report*, The Manufacturing Institute and the Manufacturers Alliance for Productivity and Innovation, 2011)



America's global leadership depends on a strong manufacturing sector. A national manufacturing strategy should focus on policies that boost the global competitiveness of U.S. manufacturers and make the United States the best place in the world to do business.

# FOCUS ON BUILDING A SMARTFORCE

- U.S. manufacturing employs more than 11,000,000 workers directly and creates almost 7,000,000 more jobs in related industries. (U.S. Bureau of Labor Statistics, 2011)
- Manufacturing jobs are high value-added jobs with good pay and benefits. In 2010, the average U.S. manufacturing worker earned \$77,186 in annual pay and benefits compared with \$56,436 annually for the average worker in all industries earned. (U.S. Bureau of Economic Analysis, 2011)
- Nearly 310,000 manufacturing positions remain open. (U.S. Bureau of Labor Statistics, 2012)
- The national education curriculum is not producing workers with the skills they need. (*U.S. Manufacturing Nears the Tipping Point*, Boston Consulting Group, 2012)



It is imperative that the United States take steps to develop a Smartforce of critically thinking, technically savvy and motivated people to fill the hundreds of thousands of available manufacturing jobs.



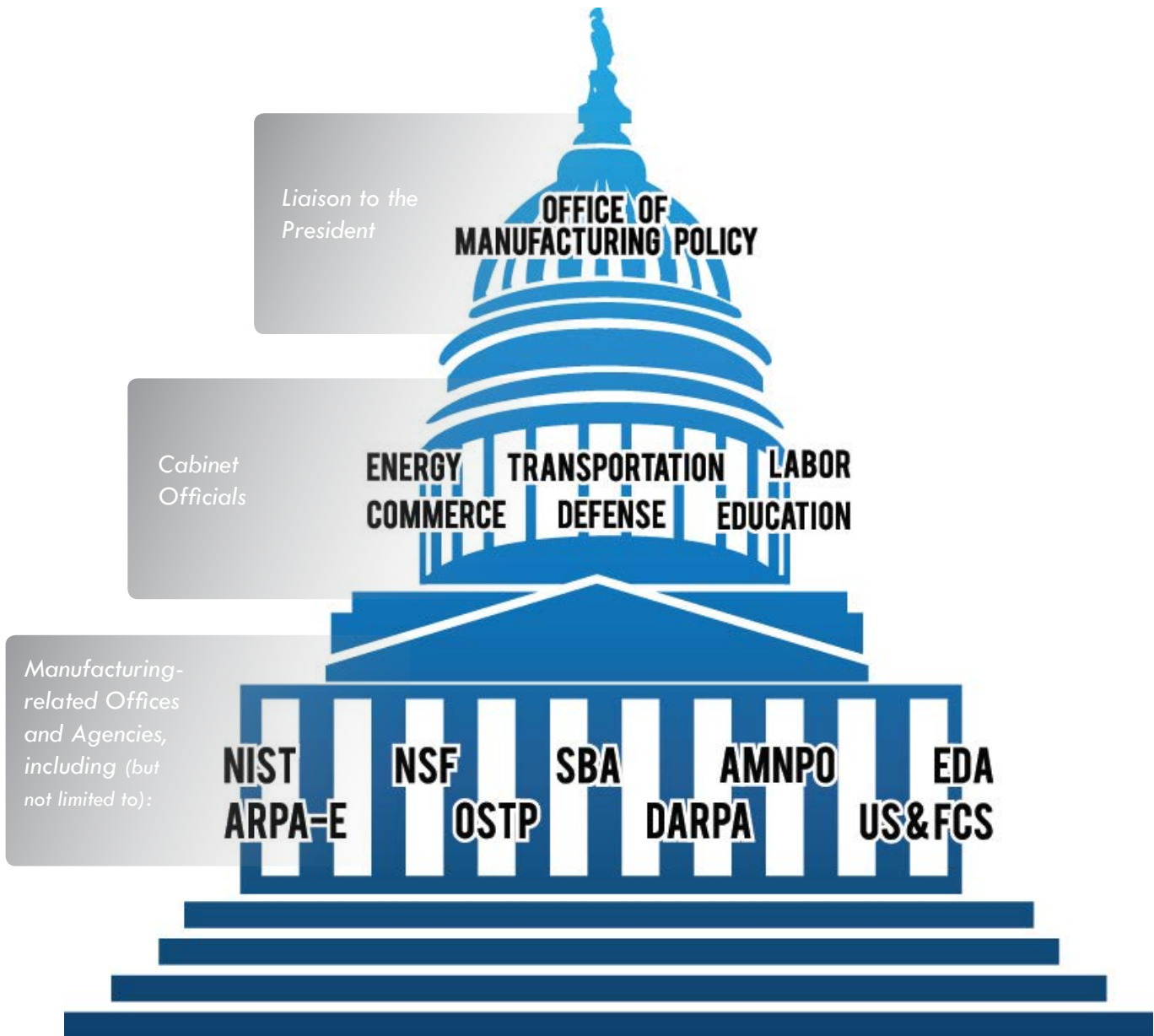
# WHAT IS REQUIRED?

In order to rebuild and revitalize America's manufacturing sector, we need a national manufacturing strategy that supports and encourages innovation, increases global competitiveness and builds a 21st century Smartforce.

Key components of the Manufacturing Mandate are...



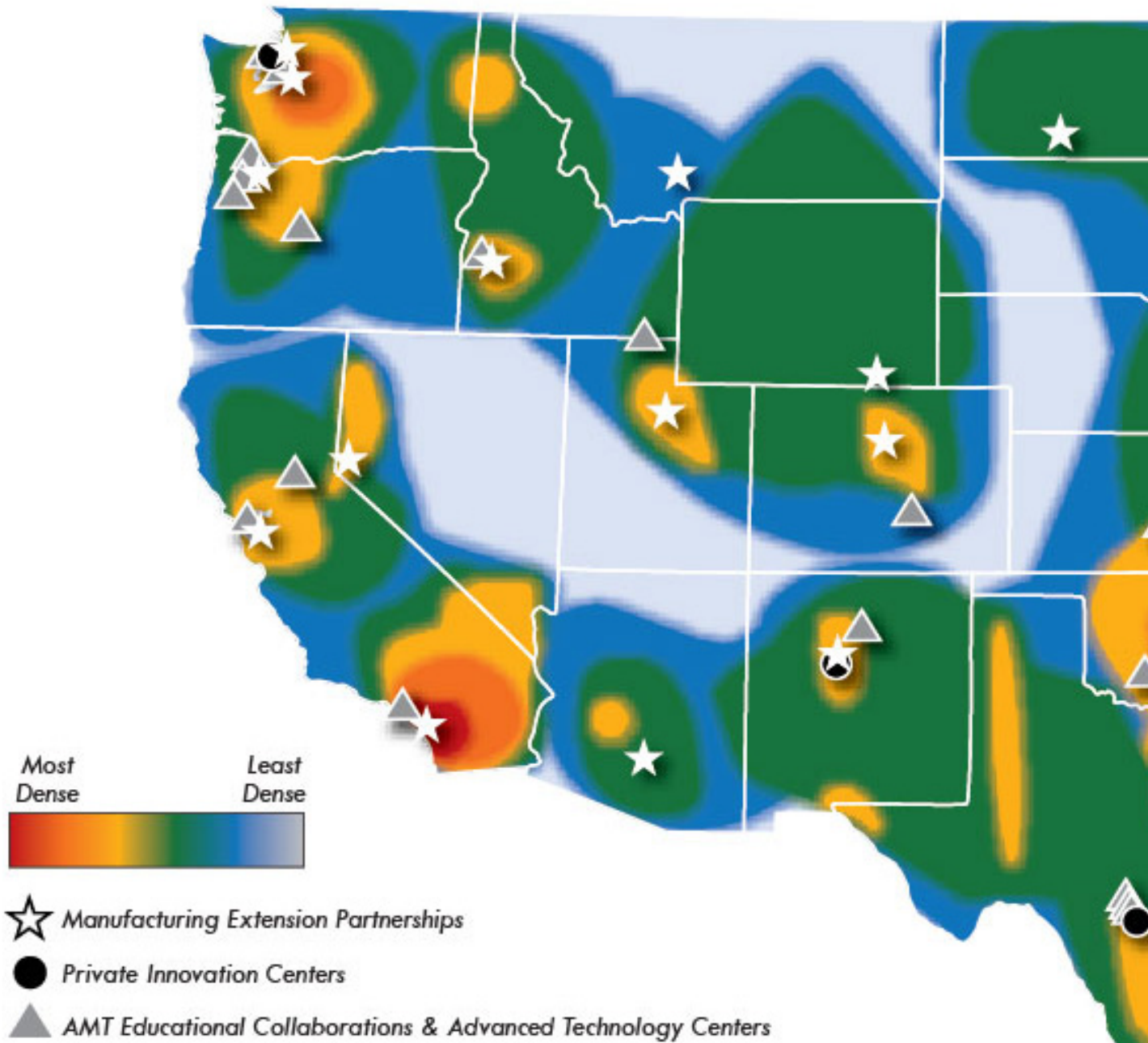
# BUILD INTERAGENCY COLLABORATION



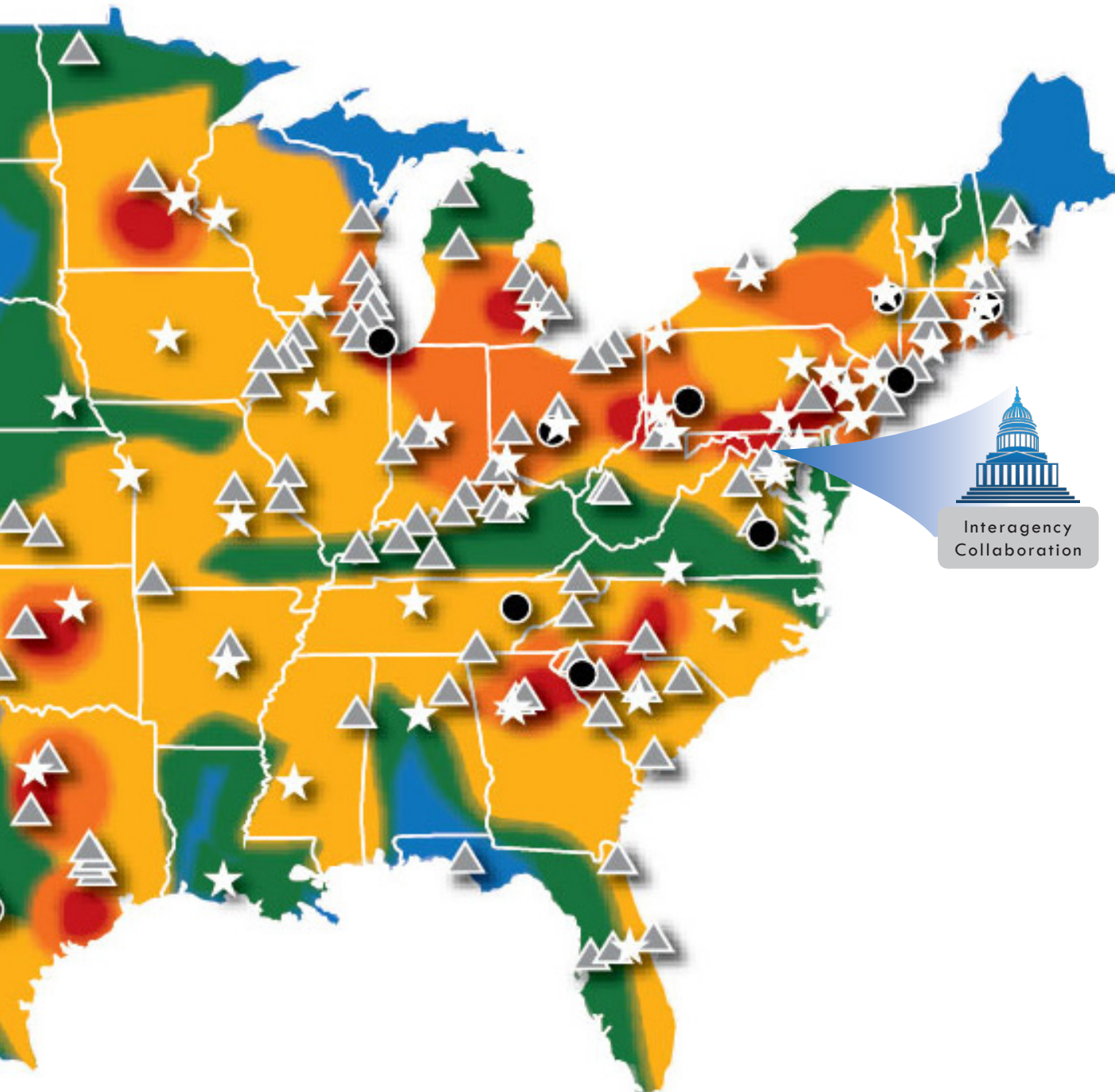
America needs to build on the manufacturing policy structure created by the administration to develop policy, focus research and coordinate implementation of the national manufacturing strategy.



# UTILIZE EXISTING INFRASTRUCTURE



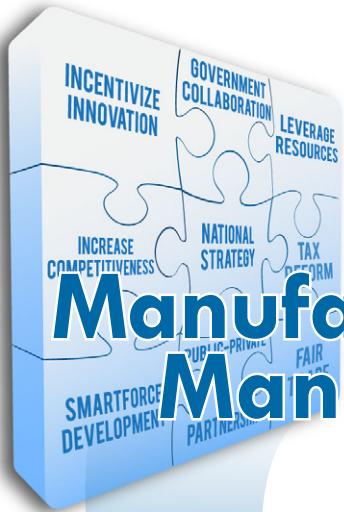
Color gradients represent densities of manufacturing innovation clusters - manufacturing companies, universities, community colleges, vo-tech schools and manufacturing extension partnerships.



This map shows that manufacturing innovation clusters are already in place. These clusters are natural hot spots for advances in manufacturing technology to occur.

# ASSEMBLING THE PIECES

Many resources are already in place. Building a functional model will require a public-private partnership between industry, government, and academia.

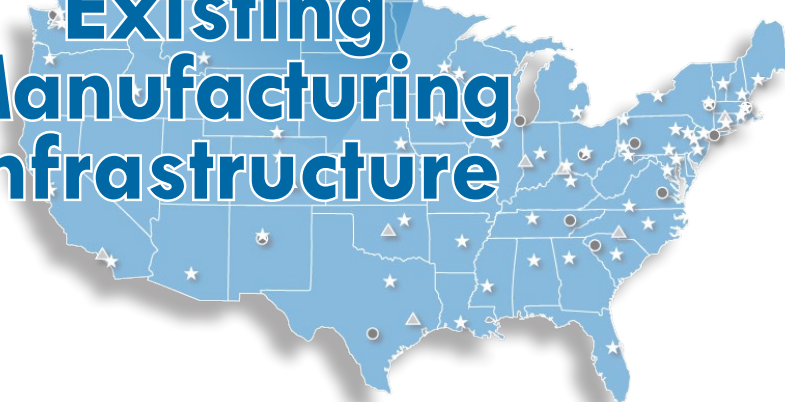


## Manufacturing Mandate

## Interagency Manufacturing Structure



## Existing Manufacturing Infrastructure



## THE MANUFACTURING MANDATE

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*Recognizing the national importance of our manufacturing sector to a vital, sustainable economy and a strong defense industrial base, the U.S. government will implement policies that:*

1. Incentivize **R&D** and **innovation** in new products and manufacturing technologies
2. Increase **global competitiveness**
3. Build a better educated and trained **Smartforce**

# MANUFACTURING MANDATE

## **Incentivize R&D and innovation in new products and manufacturing technologies**

- Increase the R&D tax credit and make it permanent
- Increase R&D funding targeted for sustaining economic growth technologies
- Leverage existing manufacturing infrastructure to increase collaboration and accelerate the rate of commercialization

## **Increase global competitiveness**

- Restore certainty through tax and regulatory reform
- Support fair and open trade where all parties play by the same rules
- Modernize outdated export control and visa policies

## **Build a better educated and trained Smartforce**

- Support grants, scholarships and academic challenges for Science, Technology, Engineering and Math (STEM) programs
- Implement national manufacturing skills certifications
- Create “2 Plus” Manufacturing Technology degree programs at community colleges and universities emphasizing industry-based internships

## **AMT – The Association For Manufacturing Technology**



AMT represents and promotes the U.S.-based manufacturing technology industry whose members design, build, sell and service the continuously evolving technology that lies at the heart of manufacturing.

## **MTConnect**

MTConnect is an open, royalty-free standard intended to foster communication and interoperability between manufacturing controls, devices and software applications to provide better data on machine utilization and productivity. The standard was funded and developed by AMT and is steadily gaining users from private industry, academic institutions and government agencies.



## **MTInsight**

*MTInsight* is the game-changing business intelligence tool that companies must have to succeed in today's manufacturing world. *MTInsight* is based on three key elements: Actuate software, AMT's experience and analysis and our unique data warehouse — all of the information AMT tracks on markets, benchmarking surveys, industry forecasts, competitors, customers and supply chain.



## **IMTS – International Manufacturing Technology Show**

The largest manufacturing technology trade show in the United States takes place every even numbered year at McCormick Place in Chicago, Ill. Owned and managed by AMT, IMTS is recognized as one of the world's preeminent stages for introducing manufacturing equipment and technology and ranks among the largest trade shows in the world.

