



# benchmark

Spring 2011

A publication of the Oklahoma Manufacturing Alliance

## Defensive Position

Choctaw Defense  
is Oklahoma's  
All-American  
Manufacturer  
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Tracker Marine  
in Miami  
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McKissick Products  
in Tulsa  
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The Growing Importance of  
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Photo: Cookshack in Ponca City

## It's not always what you know. It's knowing who can help.

*Through our statewide network of manufacturing extension agents and applications engineers, we provide a full range of services to companies. The Oklahoma Manufacturing Alliance is the go-to source for assessing needs and finding solutions available through public and private resources.*

*We offer free technical assistance and business advice, helping manufacturers become progressively more successful. Services focus on improving the bottom line, while growing the entire company.*

*We live and work in communities across Oklahoma, taking our support to your workplace on your schedule.*

Company-Wide Assessments

Lean Manufacturing

Engineering and Technical Assistance

Problem-Solving Resources

Business-to-Business Collaborations

New Products Development

State Incentives Applications

Export Assistance and New Markets

Succession and Strategic Planning



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## On the cover



Steve Benefield and Choctaw Defense operate three manufacturing factories in southeastern Oklahoma. The company is proud of what it does, but especially proud of how it does it. Through Lean Manufacturing, the company is accelerating growth.

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## FIRE



McKissick Products is one of Tulsa's oldest manufacturers and is currently the largest block producer in the world. Despite a weak economy, recent changes have the company poised for unprecedented growth.

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## WATER

Tracker Marine Group in Miami manufactures fiberglass runabouts, deckboats, and light inshore fishing boats under Tahoe and Mako brands. While its luxury market is squeezed, the company sees its glass as half-full and the climate as a chance to further advance employees and products.

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*Chuck Prucha, new president of the Oklahoma Manufacturing Alliance, recently sat down and answered five questions for the Tulsa World.*

# Prucha named president of the Oklahoma Manufacturing Alliance

Chuck Prucha has been named president and CEO of the Oklahoma Manufacturing Alliance. He succeeds Roy Peters who is retiring after leading the organization for the past 12 years. Prucha will direct the statewide economic development effort that helps companies become progressively more successful and profitable.

“I look forward to building on the significant impacts we’ve seen over the past decade,” Prucha said. “The Oklahoma Manufacturing Alliance plays a vital role in supporting what is still the largest industry sector in our state.”

Prucha brings a wealth of manufacturing knowledge to the position. He has been a manufacturing extension agent in southeastern Oklahoma since 2004. Before that he was president and CEO, North American Operations for DISA, where he led a \$100 million division of the multinational corporation.

“The importance of a healthy manufacturing sector can’t be underestimated,” Prucha said. “Facing uncertain times, 4,000 manufacturers in communities across the state continue to be the foundation that supports Oklahoma’s growth. There remains a vast potential for progress. That’s why we provide hands-on resources for improving productivity, increasing sales, and reducing costs.”

Last year the Oklahoma Manufacturing Alliance worked with more than 450 companies on projects that led to \$122 million in increased sales.

“Our statewide network of manufacturing extension agents is made possible through partnerships with CareerTech centers, higher education institutions, economic development groups, and other state organizations,” Prucha said. “That alliance is at the heart of our organization and is the way we reach all corners of the state.” The Oklahoma Manufacturing Alliance also works closely with the Oklahoma Center for the Advancement of Science and Technology, and the Oklahoma Department of Commerce.

**Q** As the organization’s new CEO, what is your first order of business as well as your primary goals over the next five years?

**A** I’ve been with the organization for a while so I’ve quickly gotten my feet underneath me. But we have literally dozens of partners across the state—CareerTech centers, universities, and corporate sponsors, as well as government organizations like the Oklahoma Center for the Advancement of Science and the Oklahoma Department of Commerce. I want to chat with each of them and make sure we are doing everything we can to support manufacturing, especially in rural communities where one manufacturer can have an enormous local impact.

Over the past few years, there’s been a concerted effort to identify those traits that make a good manufacturer great. Out of that, the national Manufacturing Extension Partnership has identified five broad areas and developed a “Next Generation Manufacturing” initiative. So over the next few years, we are going to focus on these areas—many of which we are already involved in—and help companies adopt these principles. The areas include specific ideas related to workforce development, supply-chain efficiency, continuous improvement, innovation and sustainability.

# Five broad concepts of 'Next Generation Manufacturing' offer the foundation for profitability in a global economy

Oklahoma manufacturers, like most American manufacturing firms, are facing new and significant challenges. While efficient shop floor operations of a firm represent a large part of manufacturing, efficiency alone is not sufficient in the new global marketplace.

Technology and globalization have fundamentally changed many manufacturing companies and products. This has led in turn to a new era of cost pressures, shortened product life cycles, technology that is diffusing rapidly on a global scale, and production that now involves orchestrating networks of suppliers. Manufacturing increasingly depends on access to customers and the infrastructure needed to support the constant reinvention of their products and processes. The challenge is clear: Increasing global competition, coupled with the changing nature of innovation, demands the U.S. not rest on a strategy of simple productivity improvements.

Modern day manufacturing requires not only an efficient production system, but also developing business strategies that highlight the unique capabilities of a firm and demonstrate their advantages over competitors. This means manufacturers must master innovative product design, understand the benefits of adopting environmentally sustainable processes, invest in human and physical capital, leverage a range of financing options, realize international trade opportunities, and forecast future customer demands – even before the customer knows their needs. The manufacturers of the future will need to understand their

brand and take advantage of all their assets—tangible and intangible—to distinguish themselves in the market.

Just to survive, manufacturing firms need to more quickly adopt new technologies, develop more innovative products, and constantly implement process innovations to improve their efficiency, productivity, and cost competitiveness.

While each of these improvements independently is foundational and necessary, when managed individually they do not provide long-term competitive advantage.

## The Key Areas

To be positioned not just for survival but for growth, manufacturers need to address six key critical areas in concert:

- ▲ Innovation
- ▲ Workforce Development
- ▲ Continuous Improvement
- ▲ Supply Chain
- ▲ Sustainability

The Oklahoma Manufacturing Alliance is developing a framework to provide manufacturers the ability to address these critical areas and establish a defensible competitive advantage. Manufacturers' management and integration of each of these interrelated, interdependent areas will determine their ability to protect and grow profits and compete in the long term.

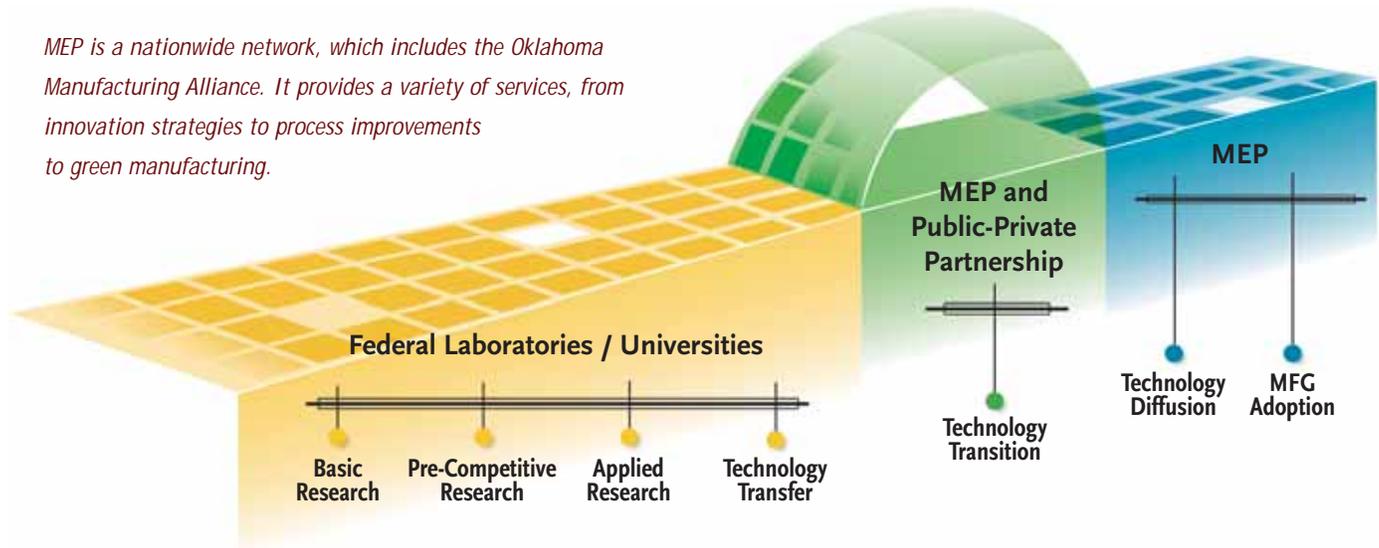
## A Closer Look at the Five Broad Concepts

- 1. Customer-focused innovation:** Develop, make, and market new products and services that meet customers' needs at a pace faster than the competition.
- 2. Engaged workforce acquisition, development, and retention:** Secure a competitive performance advantage by having superior systems in place to recruit, hire, develop, and retain talent.
- 3. Systemic Continuous Improvement:** Record annual productivity and quality gains that exceed the competition through a companywide commitment to continuous improvement.
- 4. Supply-chain management and collaboration:** Develop and manage supply chains and partnerships that provide flexibility, response time, and delivery performance that exceeds the competition.
- 5. Green/sustainability:** Design and implement waste and energy-use reductions at a level that provides superior cost performance and recognizable customer value.

These five areas are all related to a sixth area of focus: **Global engagement.**

It's important for manufacturers to secure business advantages by having people, partnerships, and systems in place capable of engaging global markets and talents better than the competition.

MEP is a nationwide network, which includes the Oklahoma Manufacturing Alliance. It provides a variety of services, from innovation strategies to process improvements to green manufacturing.



## Manufacturing Extension Partnership is valuable bridge in nationwide transfer of technology to commercial use

The National Institute of Standards and Technology's Manufacturing Extension Partnership (MEP) works with small and mid-sized U.S. manufacturers to help them create and retain jobs, increase profits, and save time and money. The nationwide network, which includes the Oklahoma Manufacturing Alliance, provides a variety of services, from innovation strategies to process improvements to green manufacturing. MEP also works with partners at the state and federal levels on programs that put manufacturers in position to develop new customers, expand into new markets, and create new products.

A strong manufacturing base is critical to the financial and national security of the United States. U.S. manufacturing firms employ over 13 million people in high-paying jobs with benefits, represent roughly two-thirds of total U.S. research and development expenditures, and account for more than 80 percent of all U.S. exports.

MEP field staff includes more than 1,400 technical experts serving as trusted business advisors, focused on solving manufacturers' challenges and identifying opportunities for growth. As a program of the U.S. Department of Commerce, MEP offers its clients a wealth of unique and effective resources centered on five critical areas: technology acceleration, supplier development, sustainability, workforce and continuous improvement.

Innovation is at the core of what MEP does. Manufacturers that accelerate innovation are far more successful than those who don't. By placing innovations developed through research at federal laboratories, educational institutions and corporations

directly in the hands of U.S. manufacturers, MEP serves an essential



**MEP • MANUFACTURING  
EXTENSION PARTNERSHIP**  
NATIONAL INSTITUTE OF  
STANDARDS AND TECHNOLOGY  
U.S. DEPARTMENT OF COMMERCE

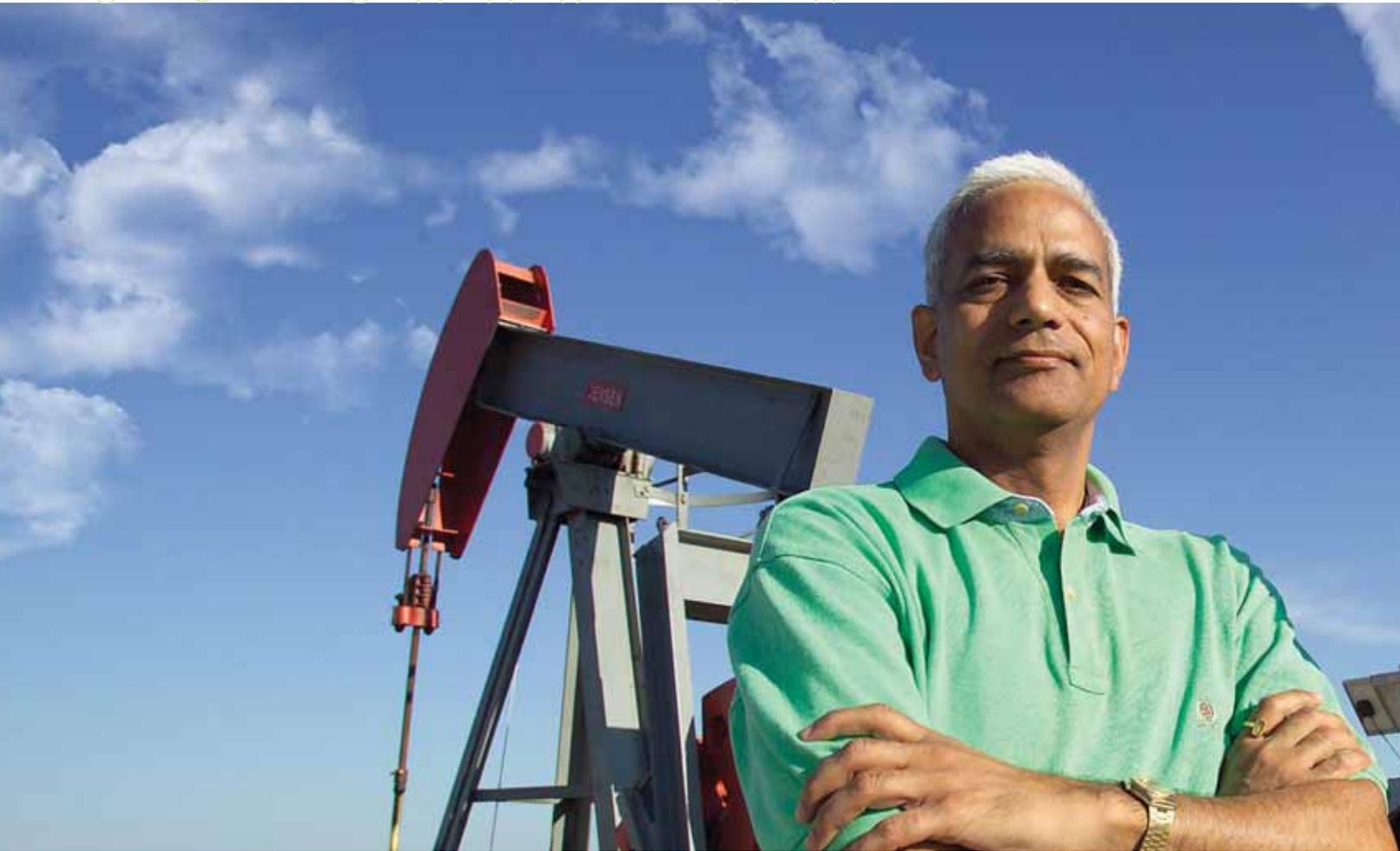
role sustaining and growing America's manufacturing base. The program assists manufacturers to achieve new sales, lead to higher tax receipts and new sustainable jobs in the high paying advanced manufacturing sector.

Continuous performance improvement strategies enhance productivity and free up capacity for growth. Technology acceleration, supplier development, and sustainability strategies represent the next logical steps toward generating profit, creating jobs, and bolstering a long-term competitive position. Success requires that manufacturers develop proactive growth strategies and foster an entrepreneurial workforce. By encouraging firms to invest in themselves across all elements of their organization, MEP works with partners throughout the network to provide the tools, services and connections focused on the five key areas of the framework: continuous improvement, technology acceleration, supplier development, sustainability, and workforce.

As a public/private partnership, MEP delivers a high return on investment to taxpayers. No other program provides as much bang for the buck. For every one dollar of federal investment, the MEP generates \$32 in new sales growth. This translates into \$3.6 billion in new sales annually.

# Innovation

A Proven Investment in Oklahoma



Dr. Singh, University of Tulsa

Helping Oklahoma innovators take their ideas to market every day.

**OCAST**>>

Oklahoma Center for the Advancement of Science and Technology

(866) 265-2215 [www.ocast.ok.gov](http://www.ocast.ok.gov)

Small Business>>Agriculture>>Health>>Manufacturing>>Energy>>Environment>>Technology>>Internships

# Council adds dental insurance to its membership offerings

Delta Dental of Oklahoma has been selected by the Central Oklahoma Manufacturers' Association to provide dental insurance to its member companies. The Delta Dental PPO *Point of Service*-Voluntary program combines both the Delta Dental PPO and Delta Dental Premier networks under one program on a point-of-service basis. The Delta Dental PPO *Point of Service*-Voluntary program gives employers with limited budgets the opportunity to offer a group dental program that not only provides a high level of benefits, but also the freedom for participants to utilize the dentist of their choice while maximizing savings and increasing provider access.

Membership in the Association is open to any Oklahoma manufacturer, regardless of geographic location. Association dues are \$50 per calendar year. The Central Oklahoma Manufacturers' Association is sponsored by Oklahoma City Community College, Moore Norman Technology Center, and the Oklahoma

Manufacturing Alliance.

In addition to dental coverage, the association offers health insurance to its members. Companies with two or more full-time employees are eligible to participate in the Oklahoma Manufacturers Health Plan underwritten and administered by BlueCross & BlueShield of Oklahoma. Potential savings in premium costs are often substantial.

Workers' Compensation Insurance at a discounted rate is underwritten and administered by Midlands Management Corporation/PMA Companies. Midlands/PMA is a nationally-recognized company in the WC arena. A written safety plan is required.

The Association offers many other discounted benefits to its members including Long-Term Care Insurance, Wireless Telephone Service, PreHire Screening Services, and Collection Services. For more information, contact Bob Carter at 405-682-7543 or e-mail to [bob.carter@okalliance.com](mailto:bob.carter@okalliance.com).

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## Free assistance available to manufacturers planning to add jobs

Reports of new participants in the state's Quality Jobs incentive program have generated some confusion, with consultants offering to help companies complete the Quality Jobs application process for a fee. But the Oklahoma Department of Commerce, through its partnership with the Oklahoma Manufacturing Alliance, offers all the free assistance you need to apply for the Quality Jobs incentive program.

Basically, the nationally recognized Quality Jobs incentive program gives qualifying Oklahoma firms money for expanding and creating new jobs. The Oklahoma Manufacturing Alliance

provides interested companies free one-on-one consultations and works with companies through every step of the application process.

If and when a company is approved for the Quality Jobs program, the Oklahoma Tax Commission charges a contract origination fee that is deducted from the company's first rebate.

For more information on the Quality Jobs program or other business incentives, contact your local manufacturing extension agent (*see page 30*) or phone 918-592-0722.

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## Introduction to Lean Manufacturing courses available each month

Lean 101 introductory courses are scheduled in Tulsa and Oklahoma City each month. The classes are open to individuals or smaller groups—an alternative for companies that may not be able to fill and hold a closed session.

The daylong courses are \$250 per person, which includes books, materials, and lunch.

The hands-on workshop will help organizations better understand Lean philosophies and the value of implementing these

concepts. Lean Manufacturing dramatically transforms the way manufacturers do business and helps companies produce more with existing resources by eliminating non-value added activities. It also helps develop and implement a long-term plan to streamline operations for success.

Interpretation to Spanish is available at some sessions. For more information, log onto [www.okalliance.com/lean](http://www.okalliance.com/lean) or phone 918-592-0722.

# GET IN GEAR



## **THE CHALLENGES FACING BUSINESSES TODAY ARE LIKE A SPEEDING CAR.**

From employee development and regulation management to marketplace expansion and global commerce, steady business growth requires both strength and agility.

Fortunately, Oklahoma companies like yours have the Oklahoma Department of Commerce to help them successfully navigate the rules of the road to business development and expansion.

We encourage you to take advantage of all the resources we have to offer.

After all, getting down the road successfully is more than just a reward for your hard work; it's an investment in Oklahoma's future.

### **Our Expertise Includes:**

- New & Small Business Information
- Business Licensing Consultation
- Business Financing Resources
- Minority & Women-Owned Business Certification & Information
- Business Incentives
- Export Assistance
- Business Incubator Information

**Contact the Oklahoma Department of Commerce today by calling 1-800-879-6552. Or go online to [OKcommerce.gov](http://OKcommerce.gov)**

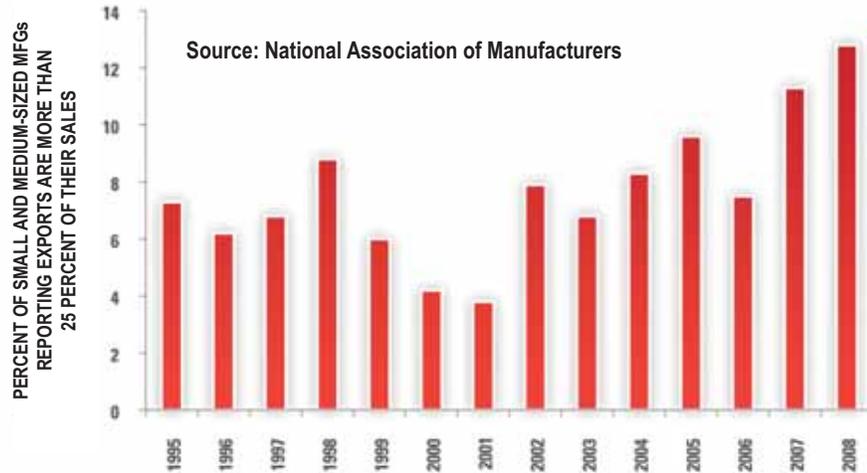
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DEPARTMENT OF COMMERCE

900 North Stiles, Oklahoma City, OK 73104

# Importance of exports grows for small manufacturers

Scale economies as well as the complexity and cost of selling goods and services overseas naturally give larger business establishments a competitive advantage in the exporting arena. In spite of the challenges, smaller manufacturing firms are gaining traction in global markets. The share of small and medium manufacturers reporting that exports account for more than one-quarter of their sales more than tripled from 3.8 percent during 2001 to 12.8 percent during 2008.

The Internet, as well as a variety of government programs, has lowered the barriers to export markets for smaller manufacturers. And technology has allowed for smaller scale production of commoditized products.



## Designed for manufacturers, ExporTech program helps develop strategies for international markets

The ExporTech program helps companies to enter or expand in global markets, by assisting in the development of a customized international growth plan, vetted by experts, and by building a team of organizations that helps companies move quickly beyond planning to actual export sales. With the weak dollar and rapid growth in many emerging economies, exports sales are the fastest growing segment of the market. The ExporTech program leads companies through a facilitated process that prepares them for profitable growth in global markets. The program focuses on rapidly moving a plan to implementation.

Participants work as a group through a process to accelerate the pace and increase the success rate of international sales efforts. Unlike a static classroom environment, this course is customized to the specific learning needs of participants and produces an international growth plan for each company. Participants will also have the opportunity to work with international business experts to refine their international strategies. For more information, phone 918-592-0722 or drop us an e-mail at [info@okalliance.com](mailto:info@okalliance.com).



# ExporTech Case Study

## *Wilco Machine & Fab in Marlow*

### About the Company

Wilco Machine & Fab employs about 300 at its 35-acre complex in the rural area of Marlow, Oklahoma. The 38-year-old company is a manufacturer of fabricated and machined equipment, products, and tools for the energy industry. Wilco built and holds the reputation as the provider of superior ASME vessels and tanks as well as bulk material handling equipment, energy services equipment, and machined products and tools. Whether Wilco builds to a customer's specification, or to one of Wilco's own designs, the customer can be assured of the finest quality, in addition to consistent, on-time delivery.

### Primary Manufacturing Extension Agent

*Bill Cunningham*

Sponsored by:

- Caddo-Kiowa Technology Center
- Red River Tech Center
- Great Plains Technology Center
- Southwest Technology Center

### The Situation

At a time when U.S. domestic markets were performing poorly and offered little or no opportunity for growth, Wilco was searching for new ways to expand its business. Vice President Anthony Chandler turned to Bill Cunningham, a manufacturing extension agent with the Oklahoma Manufacturing Alliance. Chandler and Cunningham had worked together on many projects and enjoyed a solid relationship.

Cunningham suggested ExporTech, a training program offered through the Oklahoma Manufacturing Alliance. The program offers detailed guidance—all in one place—on the variety of elements critical to understand for executing an exporting program, from banking and financing to freight forwarding, licensing, and strategy. And for Chandler, it was well-timed and exactly what was needed to ramp up their exporting program.

### The Solution

Through the ExporTech program, Wilco produced a comprehensive and detailed plan to expand its foreign markets. Putting the plan into action already has returned impressive results. After gauging the competition, Wilco met with private and state-owned oil companies. It soon established working relationships in the Middle East and South America.

Company exports have increased a dramatic six-fold and have reached 40 percent of the Wilco's total sales.

### Bullet Point Results

- A new comprehensive exporting plan
- A six-fold increase in export revenue
- Many potential new foreign markets



“ If you're going to grow and be successful, you can't just think domestically anymore. That will stifle your business. The world is our market, particularly in our industry. You've got to be willing to go where you've never been before...and maybe where no one else is willing to go. ExporTech has given us the logistical knowledge and information so we can be very successful.

”

*Anthony Chandler*

# WATER WORLD

## Tracker Marine Group is bucking the industry trend and proving it can compete in a tough luxury market

If Ramin Zarrabi had his way, every person considering a new boat from the Tracker Marine Group would first tour the company's plant in Miami, Oklahoma. While he may not be able to provide tours to every potential buyer of the factory's primary product—the Tahoe boat—he has gladly laid out the welcome mat to community groups and other manufacturers who want to tour the impressive facility.

There was a time not that long ago when such a tour would have been unimaginable. But one of the first orders of business he undertook after coming to Tracker Marine four years ago was working on a culture of pride within the walls of the plant.

“One of the most important things our tours have allowed us to do is showcase our leaders,” said Zarrabi, plant manager. “Supervisors and Team Leaders are the ones who conduct the tour. We count on our leaders to talk the talk and walk the walk. The tours allow them to showcase their wares and processes. I'm very impressed with what our people are

doing.” The Miami operation is a 53-acre campus with a number of buildings dedicated to manufacturing, aftermarket, and distribution. The factory manufactures fiberglass runabouts, deckboats, and light inshore fishing boats under Tahoe and Mako brands. While figures are impressive, the number that matters most is the 200-plus employees who keep the plant moving forward under a philosophy of continuous improvement.

Teams in the plant's four areas (Mold Preparation, Gel Coat, Lamination, and Final Assembly) focus on four aspects of business throughout the production cycle: safety, quality, delivery, and cost.

“We strive to provide a safe, uncompromising and inspiring place to work that produces quality boats while continuing to develop our team,” said Amy Wyrick, human resources manager at the facility in northeastern Oklahoma.

The Miami plant is committed to a Lean Manufacturing philosophy of continuous improvement. Lean Manufacturing is an active and constantly improving process de-





*While many companies see the glass half-empty when looking at the economy, Tracker Marine sees the climate as a prime opportunity to further advance employees and products.*



*Teams at Tracker Marine Group's Miami factory focus on four aspects of business throughout the production cycle: safety, quality, delivery and cost.*

pendent on the understanding and involvement of all the company's employees.

Display boards sit prominently in every area of the plant, with the main priority being tracking the four areas of focus. The goals are relatively simple: zero accidents, zero defects in product, delivering the product in a timely manner, and eliminating waste while improving quality and productivity.

The board isn't just a device for plant leaders to track progress, however. There are ample areas on each panel for employees to make suggestions, with a device to track all actions taken on the suggestion.

"The Miami plant has changed to a culture that allowed people to be proud of what they do," said Zarrabi. "There's always a certain resistance to change, but in the end the people who want to be here will rise to the occasion."

Marsha Cole, a manufacturing extension agent with the Oklahoma Manufacturing Alliance, has been working with the Tracker Marine for the past seven years. Cole said she is amazed at the number of positive changes made throughout Tracker Marine's operations and the optimistic shift in attitude among employees. She acknowledges such a culture change can only occur from the top down, and leaders at all levels of the organization do an outstanding job of leading by example.

"All the supervisors and leads have been through our supervisor training," said Cole. "One of the most outstanding things is that Ramin came to every one of the training sessions with his supervisors. He was never late, he never left early, and had perfect attendance. He could teach the class himself, but he

chose to attend with his supervisors, not as a teacher, but as a participant."

Cole is one of 20 Manufacturing Extension Agents working in communities across Oklahoma. She is sponsored locally by the Northeast Technology Centers and the Grand Lake Manufacturers' Council.

The formation of a "Kaizen Promotion Office" has resulted in significant improvement at Tracker Marine. The Kaizen Promotion Office involves a number of supervisors and team leaders pulled out of operational roles and dedicated for six months to learning Lean principles and applying them across the value stream using Kaizen methodology. Furthermore, the plant's six supervisors rotate through the four production areas as well as the promotion office in a six month intervals. That gives them a better picture of production from beginning to end.

"Our vision is that people who have gone through the rotation can more easily bridge over to other areas of the plant," said Zarrabi.

Tracker Marine has gone beyond the four walls of its Miami factory and introduced Lean concepts across its entire supply chain by implementing Lean logistics principles. That has increased delivery frequencies, inventory turns, and led to more effective communication with suppliers.

Cole said while the Tahoe Team is quick to open the plant doors for tours, they are just as eager for the leadership team to tour other area facilities.

"Monthly plant tours were set up for the supervisors," she said. "They looked at different companies in the area, then

came back and critiqued what they did, looking for best practices they could implement in the Tracker Marine plant.”

It’s a two-way road. Cole now brings plant managers from other companies into Tracker Marine to benchmark the efforts there.

“Ramin is an open book,” she said. “Anytime I ask for input, I get it.”

“And Marsha has been a tremendous source of benchmarking by connecting us to others in an effort to build our leadership team,” added Zarrabi.

The road to positive change has not been paved without difficulties. For instance, when Zarrabi first arrived at the Tracker Marine plant, he was greeted with a collapsed roof caused by a massive ice storm a few months earlier. The decision was made to turn the negative into a positive, with a new and improved building going up a short time later.

The Tracker Marine plant has used the same philosophy during the current economic downturn. While many companies probably see the glass half-empty when viewing the economy, the Tracker team sees the climate as a prime opportunity to further advance employees and products.

“The downturn has provided a good opportunity for us to really focus on training our employees,” Zarrabi said.

“Even when the ice storm collapsed the plant’s roof, coupled with the





beginning of the economic downturn, the training never slowed,” added Cole. “They instead continued developing their culture in preparation for an eventual upturn in business.”

The investment in people has begun paying dividends in hiring and retaining quality employees. There was a time not long ago that attracting quality employees proved extremely difficult. Many employees looked at the plant as just a job. Now, Wyrick said, most employees truly feel a sense of pride and ownership in Tracker Marine in Miami.

“It was challenging taking the journey and changing the whole vision of the company in Miami, but the Tahoe Team has accomplished that,” said Wyrick. “We are now a business that people want to work for. We’ve made a real commitment to retaining good people, and people are now looking to work here. We are getting great applicants who want to go on that journey with us, and really want to help us get to where we need to go.”

Standing in the middle of the main plant, it’s difficult for Zarrabi to keep his enthusiasm at bay as he talks about the positive changes made so far at Tracker Marine, and the endless potential he sees.

“It’s been an amazing journey for us. We have made tremendous progress here. We have laid a foundation that we can now build upon,” he said. “If you look around, we have touched every area of our value stream. With the Tahoe and Mako boats, we want to deliver the highest quality products that match Tracker’s value proposition to our customers.

“Miami has a rich boat-building history, dating back some 40 years, and I think we are bringing that pride back.”



*Left: Tahoe brand boats produced at Tracker Marine Group's Miami factory are sold at Bass Pro Shops across the country. The Miami plant manufactures fiberglass runabouts, deckboats, and light inshore fishing boats under Tahoe and Mako brands. While figures are impressive, the number that matters most is the 200-plus employees who keep the plant moving forward under a philosophy of continuous improvement.*





*CEO Steve Benefield stops to chat at Choctaw Defense's factory in McAlester.*

# AMERICAN EXPERIENCE

## With hometown pride filling three Oklahoma factories, Choctaw Defense works to build a stronger country

Underneath an oversized American flag, pride fills the air at Choctaw Defense.

The company is proud of what it does, but especially proud of how it does it.

Organizations looking for a proven blueprint to increase efficiencies and productivity might want to take a trip to southeastern Oklahoma.

Choctaw Defense, formerly Choctaw Manufacturing and Development Corporation, is a wholly-owned corporation of the Choctaw Nation of Oklahoma, the third-largest tribe in the country with 200,000 members. It operates three state-of-the-art factories in McAlester, Hugo, and Antlers.

"The tribe, as a whole, is unique," said Steve Benefield, CEO and managing officer of Choctaw Defense. "Not only do we have businesses like Choctaw Defense (its manufacturing division) we also have the finest Indian hospital in America, as well as health clinics, housing and social services, gaming operations, and convenience stores. All the profits go back into the existing operations, and anything left over goes to fund the tribe and help the local communities."

Twenty years ago Choctaw Defense was a fairly basic supplier of military shipping and storage containers for one customer, Texas Instruments. Today, the company has 17 major customers and manufactures a wide range of defense support equipment. Customers include the U.S. Army, Marine Corps, Navy, and Air Force, as well as key defense suppliers like Raytheon, Lockheed-Martin, and Boeing.

An example of Choctaw Defense's astounding growth is a 10-year contract to be sole supplier for the "Improved Army Space Heater," which includes sophisticated environmental controls to provide filtered air in chemically or biologically contaminated conditions.

The company also manufactures a variety of ground support equipment and flight critical aircraft components for the Army Blackhawk helicopter and the Air Force C17 cargo plane.

In 2010, Choctaw Defense started production on one of its largest projects ever—a \$62 million contract to build the next generation of medium tactical vehicle trailers for the Marines. It was the culmination of a five-year journey that included countless hours of design and engineering work performed by

A close-up photograph of a worker in a white Tyvek protective suit and yellow gloves. The worker is holding a yellow hose and spraying a surface. A blue Tyvek logo is visible on the suit. The background is a blurred industrial setting.

*A growing list of contracts for Choctaw Defense meant the expansion of facilities in Hugo and McAlester, as well as the creation of more than 100 jobs. CEO Steve Benefield said this growth might not have been possible without the implementation of Lean.*

## Medium Tactical Vehicle Replacement Trailers

The Choctaw Defense designed MTRV Trailer begins with a rugged common chassis for easy maintenance that requires less training.

*It includes three variants:*

- Water Tank Trailer
- General Purpose Trailer
- Cargo Trailer

*Capabilities include:*

- A 45-degree up or down slope maneuverability
- 30-degree side slope capability
- 15 mph cross country speeds

Choctaw Defense itself.

After designing and implementing an updated military truck designed to speed over rough terrain, the Army discovered existing older trailers couldn't take the new pace. In response, Choctaw Defense designed—with its own engineers and from the ground up—three versions of a new trailer. The company then worked closely with Shea Pilgreen, an OSU applications engineer working for the Oklahoma Manufacturing Alliance, to develop efficient production flow for a new factory.

These contracts have allowed Choctaw Defense to build a firm foundation in the world of “performance contracting” where the government customer provides a performance requirement and the supplier designs and develops a system that meets those exacting specifications.

Choctaw Defense has long embraced Lean Manufacturing concepts and worked closely with Chuck Prucha, a manufacturing extension agent with the Oklahoma Manufacturing Alliance, to modernize most of its other production lines. While Prucha has worked with Choctaw Defense for the past six years or so, he said the past three have been extremely active.

“Primarily the emphasis I have been focused on is the Lean process,” said Prucha, who is sponsored locally by the Kiamichi Technology Center in Wilburton. Prucha was recently named president of the Oklahoma Manufacturing Alliance. *(See page 4)*

Lean Manufacturing dramatically transforms the way manufacturers do business. The innovative process helps companies produce more with existing resources by eliminating non-value added activities. Another as-



pect is putting processes in place designed to reduce overproduction caused by traditional scheduling systems. In other words, learning to make what customers want when they want it. Lean establishes a systematic approach to eliminating waste and creating flow throughout the entire company. It also helps develop and implement a long-term plan to streamline operations for success.

“From Steve Benefield’s standpoint, he recognized that in order to stay competitive, and to continue to successfully bid on defense projects, he would have to be a Lean operation. He is staking the future on the fact they have a Lean culture,” said Prucha. “From the Oklahoma Manufacturing Alliance’s standpoint, we look forward to a long and successful relationship with Choctaw Defense, helping them with Lean projects and other opportunities.

“It’s a continuous effort to develop a Lean and more efficient facility and it definitely makes a difference in production during this trailer contract,” added Prucha. “It will be beneficial in obtaining future contracts as well.”

Scott Callaway is an engineer at the Hugo plant. Like most workers, he was initially skeptical of Lean philosophies and the transition from traditional manufacturing methods. But he notes the improvement “by a factor of four” that has made believers out of everyone.

“In our facility we manufacture military shipping and storage containers, ground support equipment, laser-guided bomb com-

ponents, and other items,” Callaway said. “Our Lean efforts here began when we were awarded a long-term, high-volume contract to produce shipping and storage containers for the 30mm munitions used in the A-10 Warthog aircraft. We recognized this

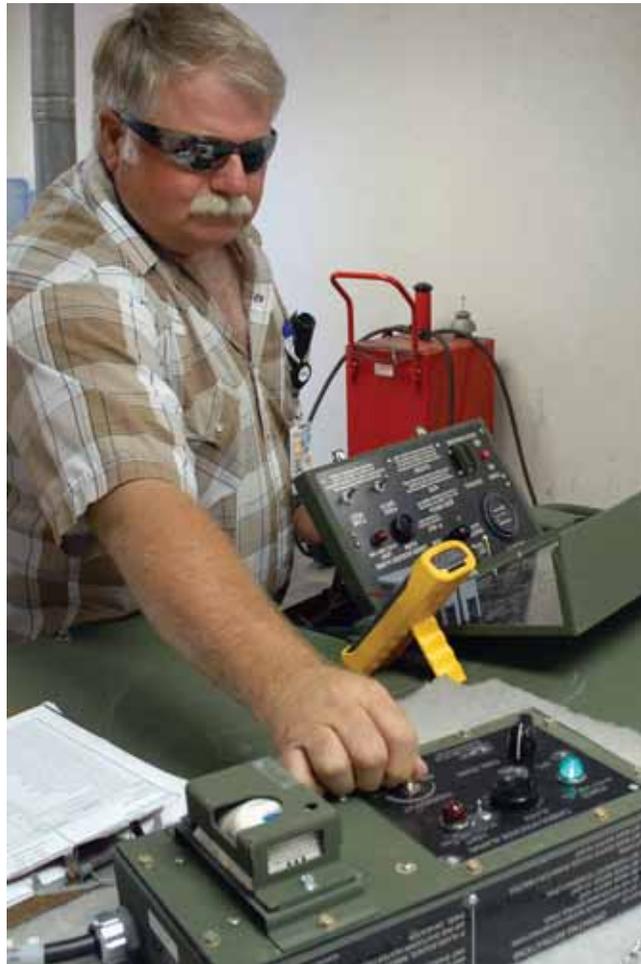
project was better suited for a more efficient means of production rather than the normal batch processes we had been utilizing. Soon after we successfully implemented the line for the 30mm container, we landed an even higher-volume contract to make containers for 105mm artillery munitions. Leveraging our initial improvements, we successfully implemented the second line.”

For Callaway, the efficiencies are making a difference beyond the production flow. “Lean Manufacturing is responsible for our ability to continue to grow our business and remain competitive on pricing with our customers,” he said.

A growing list of contracts for Choctaw Defense meant the expansion of facilities in Hugo and McAlester, as well as the creation of more than 100 jobs. Benefield said this growth might not have been possible without the implementation of Lean.

“Lean Manufacturing has played an important part in getting all of our employees involved in the process—from start to finish, from the most basic to the most sophisticated

parts. That’s something we are extremely proud of,” said Benefield. “Lean has made us profitable. Our focus is on job creation as well as profits. That puts us into good position when we are bidding on defense jobs. But we’re proud that we are selected for these projects, not because of our costs but because of our



*An example of Choctaw Defense’s astounding growth is a 10-year contract to be sole supplier for the “Improved Army Space Heater” (pictured above). It includes sophisticated environmental controls to provide filtered air in chemically or biologically contaminated conditions. The company also manufactures a variety of ground support equipment and flight aircraft components for the Army Blackhawk helicopter and the Air Force C17 cargo plane.*



experience and quality of work.”

To help maximize the impact of individual Lean Manufacturing projects, Industrial Solutions was brought onboard. Established in 1997, Industrial Solutions is a company that offers a package of services to help businesses improve performance, particularly by using Lean Manufacturing.

“We typically start by teaching people the principles of Lean, working with the employees and management to improve the layout of work stations, ergonomics, really any ideas they have in mind to minimize waste and maximize the productivity,” said Gerry Raubach, Industrial Solutions president.

Once the military trailer contract was inked, the decision had to be made whether to use existing facilities to house production or build a new factory from scratch. It ultimately was decided to construct a new 80,000-square-foot plant in McAlester, something that Raubach admitted being excited about.

“It has been unique. Most of our business is in Oklahoma with companies

*Scott Callaway (left) and John Moffitt discuss plans at the Choctaw Defense factory in Hugo. Below, Richard Kmapik is part of a workforce that continues to boost productivity. Hugo facility photographs by Broderick Stearns.*



that are trying to improve and work within existing facilities,” he said. “This was a ‘Greenfield’ project that allowed us to start from scratch.”

Pilgreen and a project engineer for Choctaw Defense helped develop the new plant from drawing board through construction. The facility was specifically designed with Lean Manufacturing in mind.

“The importance of Lean Manufacturing is first in, first out; knowing where your parts are at any given time,” Pilgreen said. “You build the parts when you need them so you don’t have them sitting around all over the place. The employees have come to see they don’t have to work as hard or as many hours to get a job done. They have really grown to embrace Lean Manufacturing.”

Raubach said companies that have successfully implemented Lean have buy-in from the top.

“They have a commitment from the very top to do this. But I would say three-quarters of the companies that begin a Lean Manufacturing transformation ultimately don’t have real management support. They don’t provide employees with the time and resources

or make the right kind of investment,” said Raubach. “You have to train people and allocate them to the right teams. Unless they do that, it just won’t be effective. One of the things that have made Choctaw Defense’s efforts so successful is the fact Steve Benefield keeps on driving it from the top.”

That cohesive spirit has helped the company earn several state and national awards. In 2009, Choctaw Defense received the Governor’s Manufacturing Leadership Award. That same year, it was named Minority Manufacturer of the Year by the Native American Business Enterprise Center and Rural Enterprises of Oklahoma. In 2008, the company played a key role when the Choctaw Nation won the Freedom Award presented by the Department of Defense. The Freedom Award is the highest recognition to employers who have shown outstanding support for the Guard and Reserves. The Choctaw Nation was chosen from more than 2,000 nominations.

“Under the leadership of Chief Gregory Pyle and the Tribal Council, we’ve been able to grow into a world-class manufacturer and have made a name for ourselves,” Benefield concluded. “But more than anything, Choctaw Defense is proud of our efforts in supporting America and its war fighters. We’re happy to make a difference in our community, in our state, and for our country.”



“

*But more than anything, Choctaw Defense is proud of our efforts in supporting America and its war fighters. We’re happy to make a difference in our community, in our state, and for our country.*

*—Steve Benefield*

”



*From left, OSU Applications Engineer Shea Pilgreen; Oklahoma Manufacturing Alliance President Chuck Prucha; and Choctaw Defense CEO Steve Benefield.*

After more than a 85 years in Tulsa  
and a company-wide transformation,  
McKissick Products is still

# BRINGING the HEAT

**D**uring their 30-plus years in manufacturing, Joe Gardner and James Jackson have always searched for ways to improve processes and increase production efficiency. And their history also taught them that no one understands how to improve efficiencies better than those who work on the frontlines day in, day out.

In the late 1990s, Gardner and Jackson were hearing more and more about Lean Manufacturing. They knew it was the direction they needed to head. "I've always taken an interest in new systems and technologies that help a facility run smoother," said Jackson, the materials manager for McKissick Products in Tulsa.

McKissick Products is a subsidiary of The Crosby Group and is an international manufacturer that markets a line of premium accessories used in material handling and rigging applications. The company, with about 250 employees at its Tulsa factory, has a distinguished reputation for providing a broad range of equipment suitable for the most demanding of operating conditions. Currently, McKissick is the largest block producer in the world. Organized in 1925 as Peerless Supply Company, it began as a distributor specializing in oilfield and welding supplies.

The company's involvement in the block business came after 1925. At that time, laws were passed requiring safety guards on wire line entrances to oilfield blocks. It was McKissick that developed and patented a wire line guard that could be opened to allow the reeving of the block without disassembly. Since 1937, when it began focusing on making blocks, McKissick has developed into the manufacturer of the widest range of crane blocks, snatch blocks, construction blocks, specialty blocks, and sheaves in the



world. In addition, McKissick also produces the Crosby Red-U-Bolt Clip, the world standard for forged wire rope clips. McKissick's certifications to ISO 9001 and API Q1 reinforce their commitment to continued quality.

Products include wire rope clips, hooks, shackles, lifting clamps, hoist rings, overhaul balls, snatch blocks, crane blocks and sheaves.

While attending a conference a few years back, Jackson purchased a couple of books on Lean philosophy and started his research. "We were interested, but really not sure where to start," he said.

That start came in 2005, when Gardner and Jackson were given the green light by FKI owners to pursue Lean and immediately started visiting companies that had already dived into the world of Lean.

"We found out pretty quickly that there's no cookbook for Lean," Jackson admitted. "With Lean, it's flexible and you custom fit it. One thing I've learned is that Lean is an ongoing process." Gardner, McKissick's VP General Manager, agreed.

Lean Manufacturing dramatically transforms the way manufacturers do business. The innovative process helps companies



*Transformations at McKissick Products began when a Lean Manufacturing leadership team began conducting meetings with frontline employees to get input on how they felt their area could operate more efficiently. The team then took measures to ensure the employees were involved in helping implement the changes.*



produce more with existing resources by eliminating non-value added activities. Another aspect is putting processes in place designed to reduce overproduction caused by traditional scheduling systems. In other words, learning to make what customers want when they want it.

Lean establishes a systematic approach to eliminating waste and creating flow throughout the entire company. It also helps develop and implement a long-term plan to streamline operations for success.

David Wheeler, an Oklahoma Manufacturing Alliance field agent sponsored by Tulsa Technology Center in Tulsa, has been working with the McKissick for the past six years. Wheeler said it was the typical case of a manufacturer looking for ways to increase production while decreasing costs. In this case, McKissick was also in need of more capacity despite the fact it had numerous buildings sprawling across its multi-acre campus in north Tulsa.

“They were the absolute height of inefficiency,” said Wheeler. “Don’t get me wrong; they were extremely successful, but not efficient.”

McKissick’s Lean process began with a thorough explanation of the Lean philosophy to upper management and how it could help the company. Jackson said the leadership team also took measures to get cooperation from union representatives.

“We got the union involved right up front,” he said, “and it really paid off. In fact, I think initially the level of acceptance within the union was easier than within management.”

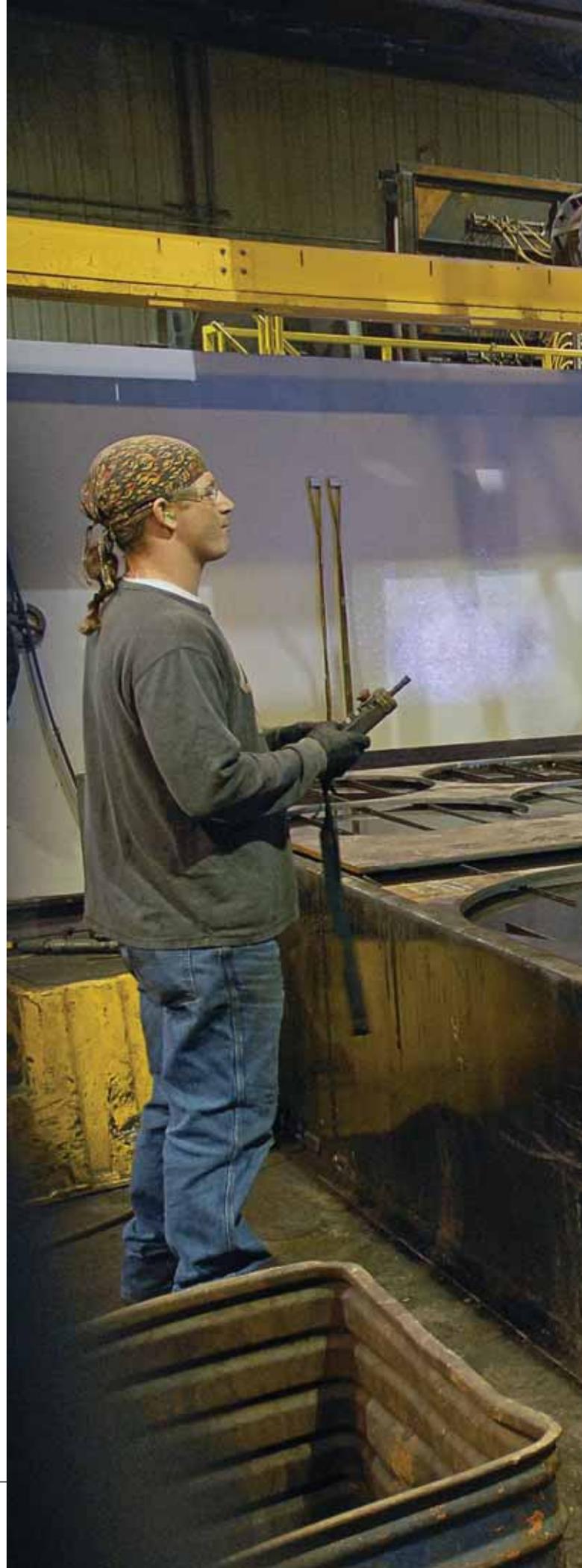
The long process really began when the Lean team began conducting meetings with the frontline employees to get input on how they felt their area could operate more efficiently. Jackson said the team also took measures to ensure the employees were involved in helping to implement the changes.

“Over time, as the employees got more comfortable, the process really took off. Once you get people to trust what you are doing, it takes off,” said Jackson. “The misconception of what Lean is can be difficult to overcome, so it’s important to communicate the process early on.”

Jackson said he was surprised how quickly even minor changes began paying off.

In 2006 they picked a product line that impacts an estimated 60 percent of all dollars that leave the facility. It consisted of a variety of disciplines, including forging, welding, machining, and heat treatment.

“It had several processes involved. We knew if we were suc-





*McKissick, with about 250 employees at its Tulsa factory, has a distinguished reputation for providing a broad range of equipment suitable for the most demanding of operating conditions. Currently, McKissick is the largest block producer in the world.*

cessful with that product line, we could then move to other areas.”

The goal was to reduce setup time by at least 30 percent. When all was said and done, and the Lean process was in place, the setup time was reduced by 67 percent. For instance, before the changes, one employee would walk 4,800 feet to do the set up. Once implemented, however, the job was split between two employees who now walk less than 250 feet apiece to get the job done.

Before Lean, the set up would take just over three hours. After, it was taken down to less than an hour.

“Before, they were chasing tools and paperwork—all the things required to get the job done,” said Jackson. “Afterward, the process was streamlined considerably.”

McKissick has since done 67 such Lean events, where they identify an area for improvement, form a team, and implement the necessary changes. They also have three facilitators who follow up after the changes to ensure they have been implemented correctly and the process is going smoothly.

Jackson said the Lean implementation has paid off. From 2006 to 2008, business grew more than 400 percent at the Tulsa facility.

“Our original goal was to get 150 parts out per week,” he said. “At our peak, we were getting out 900 parts a week.”

Even though they have been impacted by the slowing economy, and some layoffs have occurred, the impact on the company, as well as the number of layoffs, would have been dramatically steeper if they had not implemented Lean, said Wheeler. “It was good to see a company investing in the Lean concept despite the economic downturn,” said Wheeler. “I really think it has helped them recover from the downturn much quicker than other manufacturers.”

Jackson agreed, adding the company is poised to experience unprecedented growth. “Our reaction window is much narrower,” he said. “What once took maybe 26 weeks to get out now takes two to four weeks.”

Tony Jarboe, lathe operator and union steward, said the process has definitely made his job easier.

“Most everything I need is in these two drawers,” he said while opening one of the narrow drawers, where every tool is clearly marked and easily accessible. “This is just one small example of the many changes we have made throughout the plant that has made us much more efficient.”

Shop supervisor Richard Allred said that before Lean, most of his time would be spent running around his area of the plant helping employees become more efficient or help with processes that one person should easily be able to do.

“I can tell you,” he said, “I wouldn’t be standing here this calmly talking with you before we implemented these changes.”

*After a company-wide transformation to Lean Manufacturing principles, leaders say McKissick Products is poised for unprecedented growth. The factory's reaction window is much narrower. What once took maybe 26 weeks to get out now takes two to four weeks.*



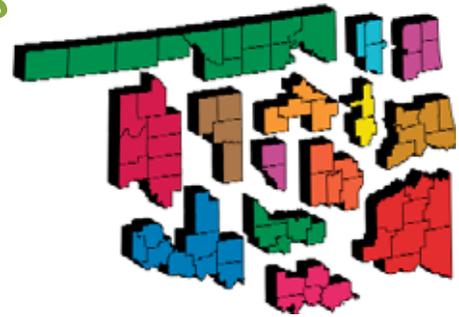


*McKissick Lean team members from left:  
Don Garrison, James Jackson, Billee  
Hightower and Angie McGuire. Not shown,  
Tony Jarboe.*



# Manufacturing Extension Agents

The Oklahoma Manufacturing Alliance provides leadership and local assistance to manufacturers to help them become progressively more successful in their marketplace. Through a network of extension agents and applications engineers, we provides real, hands-on resources for improving productivity, increasing sales, and reducing costs.



## *Representing counties as indicated*

*Alfalfa, Beaver, Cimarron, Garfield, Grant, Harper, Kay, Major, Noble, Texas, Western Osage, and Woods Counties*

**Johnny Thornburgh** 580-716-3747 johnny.thornburgh@okalliance.com

*Eastern Osage, Nowata, Rogers, and Washington Counties*

**Bill Shortridge** 918-261-5182 bill.shortridge@okalliance.com

*Craig, Delaware, Mayes, and Ottawa Counties*

**Marsha Cole** 918-257-4033 marsha.cole@okalliance.com

*Adair, Cherokee, McIntosh, Muskogee, Sequoyah, and Wagoner Counties*

**Connie Cunningham** 918-348-7942 connie.cunningham@okalliance.com

*Atoka, Choctaw, Haskell, Latimer, LeFlore, McCurtain, Pittsburg, and Pushmataha Counties*

**TBD** 918-592-0722 info@okalliance.com

*Bryan, Carter, Johnston, Love, and Marshall Counties*

**Kay Watson** 580-504-7537 kay.watson@okalliance.com

*Caddo, Comanche, Cotton, Greer, Harmon, Jackson, Jefferson, Stephens, and Tillman Counties, and the cities of Gotebo, Mt. View, and Snyder*

**Bill Cunningham** 580-704-9009 bill.cunningham@okalliance.com

*Beckham, Custer, Dewey, Ellis, Roger Mills, Washita, Woodward, and Western Kiowa Counties*

**Paul Walenciak** 580-774-7071 paul.walenciak@okalliance.com

*Blaine, Canadian, Grady, and Kingfisher Counties*

**Mike Raymond** 405-422-1284 mike.raymond@okalliance.com

*Oklahoma County*

**Bob Carter** *and the cities of Moore and Norman in Cleveland County* 405-682-7543 bob.carter@okalliance.com

**Kevin Barber** 405-717-4133 kevin.barber@okalliance.com

**Bob Smith** 405-595-4411 bob.smith@okalliance.com

**Jannetta Clark** 405-945-3396 jannetta.clark@okalliance.com

*Creek, Logan, Pawnee and Payne Counties*

**Joe Genet** 405-269-6463 joe.genet@okalliance.com

*Okmulgee and Tulsa Counties*

**David Wheeler** 918-510-1632 david.wheeler@okalliance.com

**Bart Pickens** 918-671-0646 bart.pickens@okalliance.com

**Curtis Evans** 918-449-6559 curtis.evans@okalliance.com

**Christine Allison** 918-595-8445 christine.allison@okalliance.com

*Hughes, Lincoln, Okfuskee, Pottawatomie, and Seminole Counties*

**Clarence Prevost** 405-273-7493, ext. 2255 clarence.prevost@okalliance.com

*Coal, Garvin, McClain, Murray, and Pontotoc Counties and the cities of Noble and Little Axe in Cleveland County*

**Dan Asklund** In Ada: 580-310-2227 dan.asklund@okalliance.com

In Wayne: 405-449-3394, ext. 314

# Local Manufacturing Councils

Councils are affiliated with the Oklahoma Manufacturing Alliance and provide a network for manufacturers to talk about common challenges and share ideas and resources. Councils are established by region, industry, or professional discipline. For more information, contact a specific council below or locate your local manufacturing extension agent on the opposite page.

## Aromatic Cedar Association

Paul Todd, Custom Grinding

405-745-6819      **Statewide**

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## Broken Arrow Manufacturers' Council

Shelly Cadamy, Broken Arrow Chamber of Commerce

918-251-1518      **Broken Arrow Area**

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## Central Oklahoma Manufacturers' Association

Jory Gromer, Green Bay Packaging Inc.

405-222-2306      **Statewide**

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## Enterprise Excellence Group *(Best Practices Executive Group)*

Darin Craig, Cameron Surface Systems

405-745-8125      **Statewide**

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## Grand Lake Manufacturers' Council, Inc.

Ramin Zarrabi, Tracker Marine Group

918-541-2000      **Northeastern Oklahoma**

---

## Greater Muskogee Manufacturers' Association

Dan Morris, Advantage Controls, Inc.

918 686-6211      **Muskogee Area**

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## Green Country Manufacturers' Council

Tom Perrine, Siemens Applied Automation

918-662-7110      **Nowata, Eastern Osage,  
and Washington County Areas**

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## Mid-America Business & Industry Council

William R. Wallace III, Covercraft Industries, Inc.

405-238-9651, ext. 9213      **South Central Oklahoma**

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## Manufacturers for Progress

Randy Sanders, Special Parts Manufacturing, Inc.

405-379-3343      **Hughes, Lincoln, Okfuskee,  
Pottawatomie, and Seminole Counties**

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## Oklahoma Sign Association

Gene Russell, Russell Management Resources

918-274-8988      **Statewide**

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## Sapulpa Manufacturers' Council

Joe Genet, Oklahoma Manufacturing Alliance

405-269-6463      **Creek and Tulsa Counties**

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## Southern Oklahoma Business & Industry Council

TJ Riley, Bramlett Insurance Agency

580-223-7300      **Carter, Love, and Murray Counties**

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## Southwest Oklahoma Manufacturers' Association

Jim Salitz, Fletcher Gypsum

580-549-7126      **Southwestern Oklahoma**

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## Tulsa Area Manufacturing Association

Doug Sullivent, Muncie Power Products

918-838-0900      **Tulsa Area**

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## Tulsa Manufacturers Group *(Best Practices Executive Group)*

Chuck Prucha, Oklahoma Manufacturing Alliance

918-592-0722      **Tulsa Area**

---

## Western Oklahoma Manufacturers' Association

Doug Schones, Dyna Turn of Oklahoma

580-243-1291      **Western Oklahoma**

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# Applications Engineers

The Oklahoma Manufacturing Alliance works with Oklahoma State University to provide small and medium-sized rural manufacturers with engineering and other expertise throughout the state.

Doug Enns	405-744-3740	enns@okstate.edu
Win Adams	918-341-2736	winone@okstate.edu
Clay Buford	580-237-0500	bufordh@okstate.edu
Shea Pilgreen	580-924-5094	shea.pilgreen@okstate.edu
Don Lake	580-774-7163	don.lake@okstate.edu



To receive our monthly Questline electronic newsletter, simply send a request to [questline@okalliance.com](mailto:questline@okalliance.com)



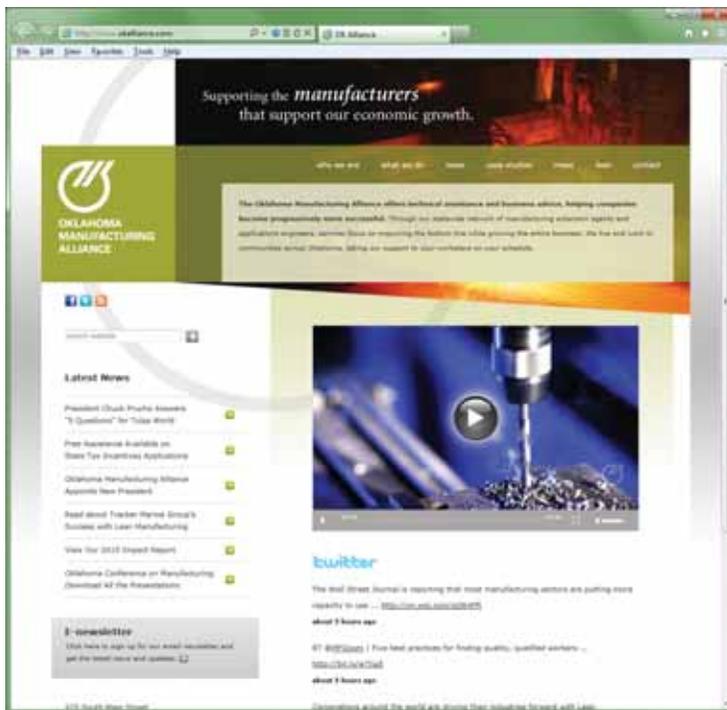
## Electronic newsletter offers timely information, technical advice

A variety of resources—straight from the desktop—is available to Oklahoma manufacturers through the Questline electronic newsletter. The service is offered free by the Oklahoma Manufacturing Alliance. The monthly electronic newsletter is a valuable source for technical advice and timely information.

Each issue contains at least four relevant stories to help you plan, manage, and grow your business. An archive of past newsletters is searchable by keyword, allowing readers to access news and reports in numerous areas like government regulations and process improvement. The newsletter's e-library feature is organized by category and lets companies find data on energy

processes, materials, operations, human resources, and facility management. The newsletter is linked to a benchmarking tool, allowing users to find the latest data on heating, cooling, lighting, and ventilation for a particular industry segment. The “Ask An Expert” component is a one-on-one link to researchers, development experts, and engineers.

The experts are available to answer any industry-related question—from how to reduce overhead costs in your plant to finding workforce development resources. For more information or to sign up for this monthly electronic newsletter, e-mail a request to [questline@okalliance.com](mailto:questline@okalliance.com).



Information on the Oklahoma Manufacturing Alliance is available 24 hours a day, seven days a week. Just log onto...

[www.okalliance.com](http://www.okalliance.com)



# Sponsors

The Oklahoma Manufacturing Alliance coordinates with local sponsors to provide Manufacturing Extension Agents who work under Manufacturing Alliance's direction to provide assistance and support to the state's nearly 4,000 manufacturers. MEAs work at the grassroots level to help manufacturers increase their competitiveness and adopt new technologies

## CareerTech

Caddo-Kiowa Technology Center, Ft. Cobb  
Canadian Valley Technology Center, El Reno  
Francis Tuttle Technology Center, Oklahoma City  
Gordon Cooper Technology Center, Shawnee  
Great Plains Technology Center, Lawton  
Indian Capital Technology Center, Muskogee  
Kiamichi Technology Center, Wilburton  
Meridian Technology Center, Stillwater  
Metro Technology Centers, Oklahoma City  
Mid-America Technology Center, Wayne  
Moore Norman Technology Center, Norman  
Northeast Technology Centers, Afton  
Pioneer Technology Center, Ponca City  
Pontotoc Technology Center, Ada  
Red River Technology Center, Duncan  
Southwest Technology Center, Altus  
Tri County Technology Center, Bartlesville  
Tulsa Tech

## Higher Education

Murray State College, Tishomingo  
Northeastern State University, Broken Arrow  
Northeastern State University, Tahlequah  
Northern Oklahoma College, Tonkawa  
Oklahoma City Community College  
Oklahoma State University,  
New Product Development Center  
Oklahoma State University-OKC  
Oklahoma State University, Stillwater  
Redlands Community College, El Reno  
Rogers State University, Claremore  
Southwestern Oklahoma State University, Weatherford  
Tulsa Community College

## Corporate

Arvest Bank  
Bank of Oklahoma  
Blue Cross and Blue Shield of Oklahoma  
Oklahoma Gas & Electric  
Oklahoma Natural Gas Company  
Public Service Company of Oklahoma  
UMB Bank

## Economic Development

Grand Lake Manufacturer's Council, Afton  
Muskogee Port Authority  
South OKC Chamber of Commerce  
The State Chamber

## Government

National Institute of Standards and Technology, Gaithersburg, MD  
Oklahoma Center for the Advancement of Science and Technology  
Oklahoma Department of Career & Technology Education  
Oklahoma Department of Commerce  
Oklahoma State Regents for Higher Education

## Oklahoma Center for the Advancement of Science and Technology

The Oklahoma Center for the Advancement of Science and Technology (OCAST) provides state funds to match federal funds in support of the Oklahoma Manufacturing Alliance.

The Oklahoma Manufacturing Alliance fulfills a distinctive role in OCAST's Mission, facilitating the transfer of technology into real-world commercialization.

OCAST works to boost Oklahoma's success in today's economy. It is a small, high-impact agency governed by a board of directors with members from the private and public sectors. OCAST works in partnership with the private sector, higher education, career technology education, and

the Oklahoma Department of Commerce.

OCAST-funded projects, which range from research and development to commercialization, are reviewed by panels of science and business experts and ranked according to scientific merit and commercial potential. In this way, OCAST ensures state funds are wisely invested where they will have the most impact.

In addition, OCAST is uniquely suited to serve as the "bridge" between the public and private sectors. OCAST provides key financial, technical, and information resources to private sector and university innovators at critical points along the technology pipeline.

# Board of Directors

## Central Office

**Chuck Prucha** 918-592-0726  
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*Vice President*  
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**Kim Norrell** 918-592-0762  
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The Oklahoma Manufacturing Alliance was formed in the early '90s by a group of public and private partners looking for an effective way to assist small and medium-sized manufacturing companies. Manufacturing constitutes about 12 percent of Oklahoma's economy and the group understood the economic development benefits of making sure those companies had access to the technology and resources they needed to grow their business.

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Tulsa

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Tulsa



# Working and living in communities across Oklahoma.

## Supporting the manufacturers that support our economic growth.

*Through our statewide network of manufacturing extension agents and applications engineers we provide a full range of services, including technical assistance and business advice that help manufacturers become progressively more successful. Services focus on improving the bottom line, while growing the entire company. We live and work in communities across Oklahoma, taking our support to your workplace on your schedule.*

- Company-Wide Assessments
- Lean Manufacturing
- Engineering and Technical Assistance
- Problem-Solving Resources
- Business-to-Business Collaborations
- New Product Development
- State Incentives Applications
- Export Assistance and New Markets
- Succession and Strategic Planning



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## Manufacturing In Oklahoma

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While there's not a lot of talk about it, small and medium-sized manufacturers work quietly in communities all over the state to strengthen the economy. Facing uncertain times, they continue to be the foundation supporting Oklahoma's growth.

- 4,000 Oklahoma manufacturing companies
- 1 in 11 of the state's workforce employed in manufacturing
- Generates 12 percent of Oklahoma's gross state product
- On average, manufacturing workers in Oklahoma earn 20 percent more than those in other state sectors
- Manufacturing accounts for 95 percent of Oklahoma's exports

*Source: National Association of Manufacturers*

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*A Solid Foundation During Uncertain Times*

