MAGNET Manufacturing Roundup

News, Competitive Intelligence and Research from the Manufacturing Advocacy & Growth Network

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MAGNET Partners with Ohio State's CAR to Serve Motor Vehicle Industry

Training in Product and Process Improvement Seen as Key to Supply Chain Profitability; Preparing Ohio for Production of Smart Grid and Plug-in Hybrid Electric Vehicles on Horizon

The Manufacturing Advocacy & Growth Network (MAGNET / magnetwork.org) and the Ohio State University Center for Automotive Research (CAR / car.eng.ohio-state.edu) announced that they will collaborate to generate increased growth and profitability for the motor vehicle and parts manufacturing industry throughout Ohio.

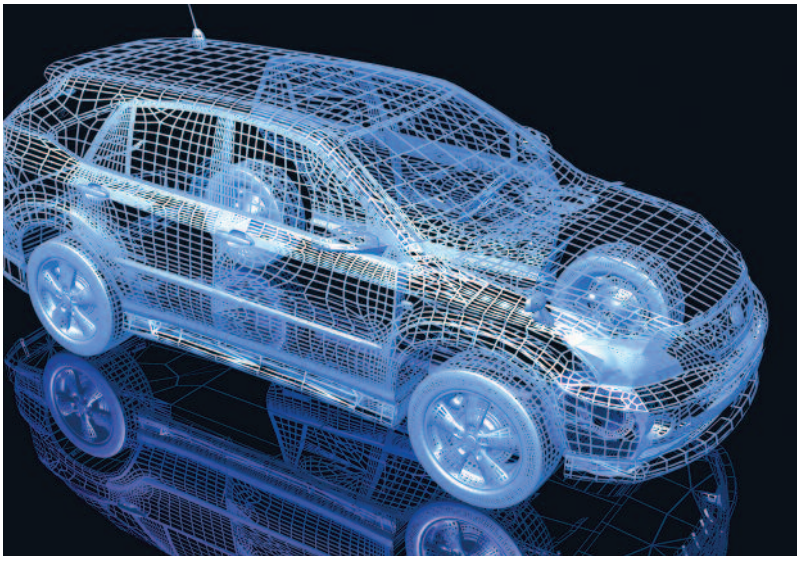
Last summer, the Ohio Department of Development designated Cleveland-based MAGNET as the "go to" Ohio Edison Technology Center for those industries statewide. MAGNET, now in its 26th year of operation, has helped hundreds of manufacturers in Northern Ohio increase their productivity and make enterprise-wide innovation a high priority in client companies. Upon completion of MAGNET-related projects, their clients report back an average 56-to-1 return on investment.

CAR is an interdisciplinary research center in the College of Engineering at the Ohio State University focused on helping shape the future of the automotive industry, including smart grid and plug-in hybrid electric vehicles. Operating from state-of-the-art facilities that position CAR as one of the leading automotive centers in America, the faculty, staff and students focus on excellence and innovation in research, technology, education, and establishing and adopting best practices.

"MAGNET now looks forward to providing our proven, successful services to even more companies throughout Ohio. We are confident that our partnership with CAR will improve our ability to help companies of all sizes within the motor vehicle and parts manufacturing industry to compete more effectively in today's global marketplace," said MAGNET President and Chief Executive Officer Dan Berry.

"CAR is well positioned to provide technology innovation for the automotive industry in Ohio, and through MAGNET we will be able to increase the type and level of engineering services we are already providing to the industry. The cooperation between CAR and MAGNET creates complementary capabilities and is a unique partnership in the country," said Center for Automotive Research Director Dr. Giorgio Rizzoni.

Both MAGNET and CAR were active participants in the Ohio Automotive Industry Support Council workshop held in late December in Columbus. The purpose of the Council, established by Ohio Governor Ted Strickland this fall, is to issue recommendations to the State to protect and grow the automotive industry in Ohio. The workshop was convened by Ohio Department of Development Director Lisa Patt-McDaniel and Ohio Board of Regents Chancellor Eric Fingerhut and attended by senior executives from leading automobile manufacturers such as Ford, General Motors, Honda, Chrysler, Toyota and auto suppliers such as Goodyear, United States Steel and Eaton Corporation.



John Griffin, Director of the Ohio Department of Development's Technology and Innovation Division, noted that MAGNET's focus on motor vehicles and parts manufacturing is an element of the State's strategy to ensure that industry sectors critical to the State's economic vitality receive necessary attention and support. He said that each of Ohio's seven Edison Centers is focused on assisting a particular industry sector to address competitiveness issues.

MAGNET already has two programs in place for Ohio companies in the motor vehicle supply chain to achieve process and product improvement. One allows suppliers to use a U.S. Department of Labor grant to pay half the cost of training employees in continuous improvement projects such as lean and quality management. The other is a series of online process improvement training courses for shop floor employees and online management personnel courses. ◆

Department of Labor Offers Half-Price Training Grants to Ohio's Auto Supply Chain

Special Incentive Program Available thru June

To support manufacturers in the auto supply chain, the United States Department of Labor has funded a program allowing Ohio manufacturers in the auto supply chain to use a federal grant to pay half the cost of training employees in continuous improvement projects such as lean and quality.

MAGNET, a provider of Manufacturing Extension Partnership (MEP) services, can provide auto supply chain employees in Ohio with 35 hours of professional training—a $1,000 value—for just $500 per employee through June of this year.

Available training is a blend of continuous improvement tools and soft skills including:

- value stream mapping
- principles of lean
- 5S & Visual
- cellular layout
- problem solving
- error proofing
- working through conflict
- team facilitation

MAGNET is offering this half-price program through "open enrollment" with a limit of 5 employees per company. Open enrollment sessions will be held thru June 2010 in Northeast, Northwest, Central and Southwest Ohio at times and locations to be announced.

Interested companies can also choose to have customized lean and quality training sessions delivered on site at their own location if desired.

There are a limited number of these special Department of Labor training grants available and they will be distributed on a first-come, first-serve basis.

For further information on open enrollment, or to register your employees for this special half-price training, contact Linda Barita at 877-GROW-MFG or linda.barita@magnetwork.org.

For information on the customized on-site training available to companies in the auto supply chain, contact Bob Schmidt at 216.432.5346 or bob.schmidt@magnetwork.org. ◆

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ASK THE EXPERT Powder Coating Industry Productivity Standards

QUESTION

Looking for productivity measures for the shop floor. What is the amount an employee can coat on a per hour or per shift basis in square feet?

ANSWER

Questline's experts contacted Roger Talbert, the Technical Director at the Powder Coating Institute (616-356-6190). He stated that—while he is not aware of any specific benchmarking documentation—he estimated that an average figure for a single operator would be about 900 square feet per hour. This figure is based on the following assumptions:

- The average line speed for a powder coating line is six feet per minute. While there are varying line speeds, anything over six feet would require special operating conditions or multiple operators.
- A typical vertical area in a powder coating operation is five feet.
- Lines typically operate at 50% capacity.

Using these assumptions, you would make the following calculation:

6 ft/min X 60 (min/hour) = 360 ft/hour
360 ft/hr X 0.50 (at 50% line capacity) = 180 ft/hour
180 ft/hr X 5 ft (vertical area) = 900 ft²/hour ◆

Lean Adds Value To Your Supply Chain

Using the principles of lean manufacturing throughout the supply chain can help you improve customer satisfaction and increase profits. The supply chain focuses on all of the activities involved with acquiring the resources (raw materials, parts, services) necessary to conduct the manufacturing process. Lean manufacturing emphasizes creating customer value through the elimination of waste and continuous improvement. The basic principles of lean can be applied all along your supply chain, adding value at every step and creating a "value chain" that delivers maximum worth to your customers. This process is called "value chain management" and it involves your company, your customers, your suppliers, and your supplier's suppliers.

Lean in the Manufacturing Environment

The most important component in successfully integrating lean is the ability to understand value from the customer's perspective. Without this, there is no way to judge what is and what is not waste. The core of lean philosophy is eliminating waste from every activity involved in developing, producing, and delivering the product to the customer. While every successful lean manufacturing enterprise is different, they all share certain characteristics:

- Customer demand is the key to all production activity.
- Value is determined from the customer's perspective.
- Processes are designed for maximum flow.
- Strong emphasis is placed on continuous improvement throughout all operations.
- Empowerment of individual employees for control and responsibility in their part of the manufacturing process.

Lean is more than a strategy for reducing inventory and cutting costs, it is an entire organizational philosophy. The focus of lean is an ongoing process of identification and elimination of waste in time, materials, and energy throughout the enterprise. Waste may exist in any part of the operation (design, maintenance, paperwork, and so on), therefore, vigilance and corrective measures must be continual. Since most manufacturing waste is inefficient and costly, the benefits of adopting lean are significant. These include:

- Shorter lead times
- Higher throughput
- Improved quality
- Improved customer satisfaction
- Reduced costs

Lean in the Value Chain

While always having an eye toward the customer, lean has traditionally been functionally limited to the four walls of the manufacturing facility. The focus has been on constantly improving all operations within the facility to better respond to customer demand. In this increasingly interactive and global economy, however, most manufacturers rely on a growing web of suppliers and outsourced service providers. Integrating this complex supply network with ever-changing customer needs is a critical challenge for many organizations.

In recent years, methodologies such as Supply Chain Management and Enterprise Resource Planning have arisen to help companies improve supply chain processes and align the supply chain with company strategy. Supply Chain Management has helped companies gain control of their resources and improve efficiency. Enterprise Resource Planning has traditionally been used to solve supply chain problems such as waste and large batches.

KEY POINTS

- **Lean manufacturing emphasizes creating customer value through the elimination of waste and continuous improvement.**
- **Lean can be applied not only in the manufacturing facility, but throughout the supply chain.**
- **A successful lean value chain requires customer and supplier involvement, as well as effective communication and relationship building.**

Global competition has given rise to patterns such as constantly changing demand and growing variability in customer ordering patterns. In this climate, manufacturers are rethinking traditional methodologies. Planning systems are seen as useful for long-term strategic insight, but lacking in responsiveness to real-time customer demand. Lean execution throughout the supply chain can provide this kind of responsiveness. Increasingly, lean is seen as extending not only from the customer back to the production line, but all along the value chain from the rawest of raw materials to the final end product.

Key Steps to Creating the Lean Value Chain

Every successful value chain has a certain set of characteristics. The following activities are necessary in developing a lean value chain:

- **Customer and Supplier Involvement**—Successful companies recognize that they are just one link in the value chain. Suppliers and customers must be on board and deeply involved in both the lean implementation process and the process for continuous improvement. Lean requires changes in the way supplies are obtained and in the way products are delivered. Accomplishing lean goals such as on-time deliveries, less inventory, and shorter lead times requires a coordinated effort along the value chain.
- **Effective Communication**—Implement lean techniques across the value chain, communication must extend beyond the walls of the company to suppliers and customers. The system must be capable of communicating real-time demand and replenishment information, while integrating large volumes of data across a network of suppliers and customers. While this has long-remained a dilemma, recent developments in web-based communication systems has made it possible for companies of all types and sizes to communicate quickly, and cost-effectively, across all geographic regions.

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- **Relationship Building**—While communication systems are critical to a functioning value chain, understanding is even more important. If each company is focused only on the link right in front of them, then only a reactive approach to problem solving and changing conditions is possible. Focusing on links all within the value chain increases reaction time and allows for a more proactive approach. In a lean supply chain the manufacturer and the manufacturer's suppliers must be aware of the ultimate customer's needs. A value chain is all about the relationships between suppliers, producers, and customers.
- **Value Stream Mapping**—The concept of the value stream, or the value-adding activities that go into designing, producing, and delivering a product, is an essential part of implementing a lean system. Process steps are examined to develop a current-state map and an idealized future-state map that includes improvements from lean initiatives. Value stream mapping for the supply chain is a similar process, but also includes transportation links, communication links, as well as material and information flow between your suppliers and customers. After creation of the supply chain's current state map, supply chain partners should examine it for bottlenecks, waste, and process improvement opportunities. As with any lean initiative, this should be an ongoing process with continual improvement as the goal.

For information on how MAGNET can help companies in Ohio's motor vehicle and parts manufacturing industry, contact Linda Barita at 877-GROW-MFG or linda.barita@magnetwork.org

- **Lean Suppliers**—Lean suppliers respond rapidly to change. They deliver on time with consistently high quality. To create lean in the value chain, manufacturers should encourage and assist suppliers in implementing lean initiatives.
- **Lean Purchasing**—The key to lean purchasing is information. Lean manufacturers should be able to quickly and easily share information about their operations with lean suppliers. Online procurement and communication systems are key.
- **Lean Transportation**—The focus here is on making travel time count and reducing delivery times. Concepts include: right-sizing equipment, cross docking, and combined multi-stop truckloads.
- **Lean Manufacturers**—The manufacturing facility provides the greatest opportunity for cutting waste, improving quality, and reducing lead-times in the value chain. Lean manufacturing facilities produce what the customer wants with minimal waste, and delivers it on time.
- **Lean Warehousing**—Distribution is critical along multiple links in the value chain, so communication and integration are important. Lean principles can be applied to the distribution center to cut waste, improve productivity, and increase space utilization.
- **Lean Customers**—Customers must buy into the concept of the value chain and be able to communicate effectively with product manufacturers and their suppliers. Lean customers value speed and flexibility. They understand the needs of their business and are able to convey those needs. Lean customers provide value to their clients and they expect value from all of their business partners as well. ◆

Links in the Lean Value Chain

A lean value chain is composed of an ever-widening circle of organizations focused on creating value and continuously improving. There are several important elements in a lean value chain:

OHIO'S EDISON TECHNOLOGY CENTERS
WHERE INDUSTRY MEETS INNOVATION

MAGNET is a provider of Manufacturing Extension Partnership (MEP) services through the National Institute of Standards and Technology (NIST), an agency of the U.S. Department of Commerce. MAGNET is also one of the Ohio Department of Development's seven Edison Technology Centers and a Third Frontier Center of Excellence in Product Innovation.

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