

## MAGNET's New E-Learning Program Designed to Fit Smaller Manufacturers' Needs

**Companies Can Reap the Benefits of Continuous Improvement Training, Without Bringing Production Lines to a Halt**

By Mary Ann Pacelli,  
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Mary Ann Pacelli

We at MAGNET frequently hear from small- and medium-sized manufacturers how difficult it is for them to make time for traditional workforce training projects. These same manufacturers also tell us they know they need to adopt Continuous Improvement techniques such as Lean to remain competitive.

To meet the needs of these clients, MAGNET designed a modular, online Lean Tools and Techniques training program that offers smaller manufacturers

self-paced modules that will not impact production.

During its development, more than 350 employees from 30 Northeast Ohio companies piloted MAGNET's E-Learning program before its official launch in the first quarter of 2010.

### Advantages of E-Learning

One of the major benefits of E-Learning, compared to traditional classroom-style employee training, is that all the workers to be trained do not have to be made available at the same time.

E-Learning modules can be rapidly deployed, easily expanded or updated and allow for consistent instruction and feedback.

MAGNET's E-Learning program provides "just-in-time" training. The courses are completely self-directed, with audio narration to support trainees who may have limited reading skills. Each unit includes a specific "learning activity" that demonstrates immediate implementation. Training time for each module is under 20 minutes. The related learning activity takes an additional 20 minutes.

At the end of each module's activity, MAGNET recommends participants meet with the project leader to review it and pick

one or two ideas to implement quickly themselves—usually within one week. With quick implementation, workers can see immediate change in their workplace; change created using their own ideas.

### Subjects Covered

MAGNET's E-Learning program consists of a series of process improvement modules specifically for front-line workers:

- ◆ 8 Wastes
- ◆ 5S/Workplace
- ◆ Point of Use Storage
- ◆ Standard Work
- ◆ Problem Solving
- ◆ Team Leadership

The program also includes online training tools for management personnel, including:

- ◆ Growth Planning (8 modules)
- ◆ Sales Planning (10 modules)
- ◆ Lean Manufacturing (10 modules)
- ◆ Change Management (9 modules)

### Summing Up

Many of the 30 companies who helped MAGNET pilot the program continue to use it. One company set up its own internal training lab where both existing and new employees can access the program's self-paced modules.

Taken together, these 30 companies reported more than \$3 million in economic impact as a result of the training and implementation of new ideas. MAGNET's E-Learning program clearly demonstrated that even very small companies can benefit from online training to enrich their workforce with an understanding of the fundamentals of Lean Manufacturing principles.

The MAGNET E-Learning program officially launched in early 2010 and is now available to all companies at an affordable rate. Thanks to a limited-time grant, companies in the auto supply chain with less than 50 employees can gain access to the basic Process Improvement modules at no cost for an introductory period.

For more information, contact Linda Barita at 216.391.7766. ◆

# Workforce Development Success Story: Severstal Warren

In only two years, MAGNET Consultants helped Severstal Warren generate an estimated ROI of more than \$3.3 million thanks to a new skills training program that reduced maintenance job classifications at the plant from 20 to two

In 2004, WCI Steel Inc. was working its way through Chapter 11 bankruptcy. A critical part of that process was negotiating a new contract with its workers, represented by the United Steelworkers of America (Local 1375).

The new labor agreement included a key provision: the plant had to turn out more steel with 250 fewer workers.

"In this contract, the union took a proactive stance," says Jim Courim, a union official and Training Coordinator for Severstal Warren. "We said the only way we can survive in a global economy is if we work together. And, in working together, we [the union] have to have some authority in how things are going to work."

One contractual requirement was to reduce the number of "Maintenance" classifications from 20 to just two: Maintenance Technician Mechanical (MTM) and Maintenance Technician Electrical (MTE). In addition, a new program called Maintenance Assist was developed with the goal of building flexibility into the production process by making most plant employees available to perform assistive maintenance whenever needed.

For example, if a production line had to be stopped for maintenance, instead of an entire work team sitting in the break room waiting for a maintenance team to arrive, members of that team would already be qualified to perform a variety of tasks.

The new system would carry two productivity-boosting benefits:

- ◆ less time lost waiting for maintenance help
- ◆ faster repairs to a production line resulting in less downtime

"The goal here is to reduce downtime," says Courim. "If we can get more hands on equipment to get it running faster, then we reduce downtime, we increase yield and profitability goes up."

Union leaders recognized that achieving these goals would be no small task—the company had nine operational areas/departments and more than 500 employees who might require training. So WCI Steel called on MAGNET (then known as CAMP) to help create and implement a Training Plan.

## Approach

The WCI Training Committee, consisting of 5 union and 3 management representatives, began working with MAGNET consultants Mary Ann Pacelli and Becky Kemp in January 2006. Their objectives:

- ◆ Design a training plan and internal certification for the Electrical and Mechanical Maintenance classifications
- ◆ Develop training to support the transition of all employees to the identified competencies in each skilled classification

Pacelli and Kemp led the WCI Training Committee through a step-by-step process to achieve those objectives.

1. Conducting a Training Needs Analysis
2. Producing a Gap Analysis
3. Producing a Training Plan Design
4. Implementing the Training Plan Delivery process



Jim Courim (left), Training Coordinator, and Fred Speerstra, Continuous Improvement Trainer, discuss progress for the new training programs being developed for USW Local 1375 workers with MAGNET staff members Becky Kemp and Mary Ann Pacelli.

In August 2006, the WCI team began evaluating nearly 300 employees to assess their skill competencies.

"This helped us come up with a list of priorities," says Courim. "For example, we found that all the maintenance staff really needed some welding training. Within six months, we had stripped and refurbished an old welding lab that had gone into disrepair and bought all new machines."

## Evolution

Within a year, approximately 120 employees had been trained in basic welding techniques and received state certification.

Courim says MAGNET consultants Becky Kemp and Mary Anne Pacelli taught union coordinators the principles of instructional design and how to create their own customized training materials appropriate to WCI Steel's manufacturing process.

"We could always go out and buy some canned textbook on welding," Courim observes. "But it's too basic. Now we can use digital photography right here in the plant and create PowerPoint presentations for our classes that include our own safety procedures. We can visually document our plant's best practices."

Within a year, WCI's two training programs had grown to 19 and more than 1,000 individuals had been trained in various aspects.

"What we've done here is a cultural change," says Courim. "We're taking a guy and saying: 'Yesterday you just did this. Tomorrow, you're going to do any part of this.'" ◆

# Operator Training Goes High Tech: The Advantages of E-Learning

## Studies Show Companies Can Achieve Considerable Cost Reductions Through the Use of E-Learning Technologies

Training is more critical than ever as a means of staying competitive by increasing productivity and improving quality. Many training initiatives, however, are plagued with logistical and financial problems.

Training classes and high-priced consultants are expensive and take workers away from the plant floor, costing money and hampering productivity. Driven by the need to cut costs while still retaining the effectiveness of their training programs, manufacturers are turning to alternative training methods. As a result, cost-effective, computer-based training technology is beginning to change the way employees learn on the shop floor.

On-line or computer-based instruction, commonly known as "e-learning" has been used for years to train management and office personnel, but has only recently made inroads on the plant floor. A number of drivers are pushing manufacturers to utilize e-learning in their operator training programs. Manufacturing technology continues to change rapidly and there is a growing need to deliver training in a just-in-time fashion. Second, there is the constant need to cut costs and improve productivity. Finally, there is the growth of Internet access, coupled with the increasing availability and standardization of e-learning technology.

### Advantages of E-Learning

E-learning presents a number of advantages over traditional classroom training methods.

- ◆ **Cost.** Various studies have shown that companies can achieve considerable cost reductions through the use of e-learning technologies. However, there is no consensus among experts on how to calculate actual return-on-investment.
- ◆ **Learner Oriented.** E-learning can allow individual operators to work at their own pace, and multi-lingual programs may help to overcome language barriers in today's increasingly diverse workplace.
- ◆ **Flexibility.** E-learning makes it possible for participants to customize training around their scheduling needs. Operators, or their managers, can decide when to schedule learning activities, such as during slow periods.

◆ **Scalability.** On-line training allows for the participation of a single worker or a group of users. This increases flexibility both in scheduling and in user orientation.

◆ **Reusable.** Computer-based training programs can be stored and made available for refresher training or for new workers.

### Limitations of E-Learning

Despite its many benefits, there are still barriers to acceptance for this type of training, particularly among smaller companies. There is still a desire for personal interaction and, among many workers (especially older ones), a lack of familiarity with computer technology. For some, e-learning conjures up an image of a huge IT project suitable only for larger companies. Many smaller companies may also have limited access to the Internet, particularly on the shop floor. While these barriers continue to come down as access to technology becomes more widely available, they still exist for many organizations.

There are limitations to e-learning. While an on-line course can provide interactivity, real-world simulation, testing, and assessment, it is most effective when used in conjunction with hands-on training provided by more experienced personnel. Thus, while e-learning will increasingly become an important part of operator training, it is unlikely that it will completely supplant classroom learning.

### E-Learning Technologies

E-learning programs are typically delivered as a stand-alone software package on a CD-ROM or as Web-based training that takes advantage of company intranets. The advantages of the latter approach include the ease of updates and flexibility in deployment across various workstations and locations. E-learning packages typically provide instruction, visualization, and in some cases, interactive simulation. Testing and assessment are also commonly available so that users and managers can track worker progress.

When purchasing new equipment for the shop floor, training is sometimes limited to a vendor presentation.



Increasingly, however, equipment vendors are providing computer-based training as part of their product package. Many larger companies, such as Toyota, have developed their own e-learning programs. There are a number of prepackaged e-learning products available that teach equipment operator skills and general manufacturing principles. Many of these prepackaged programs can be customized to fit the needs of individual organizations.

### Keys to a Successful E-Learning Program

On-line training should be supplemented with personal coaching and supervision.

Two essential elements to a successful e-learning program are a systematic process and follow-up.

Under a tight production schedule, on-line training courses can easily get lost among other priorities. Employees must be made aware that the on-line training is an essential part of their job and not something that can be just put off to some future date. A specific schedule of goals for on-line training for each employee should be created and rigorously maintained.

Proper follow-up to on-line training is critical to this process. As with any initiative, feedback is important. Testing and assessment will not only encourage employees to participate, but will provide evidence of the effectiveness of the program. ◆

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# PLIDCO Tries (and Likes) E-Learning

## Bringing 85 Employees Up-to-Speed on Lean Concepts—Without Impacting Production



***As a result of the online training, in combination with a MAGNET Lean 101 on-site training course, the company has just about doubled production since 2006 and now generates \$1 million in sales a month.***

— Mary Smith, PLIDCO's Safety Training Director

In 2007, to support a major, multi-year Lean initiative, Pipe Line Development Company (known as PLIDCO), instituted an online training initiative to bring all its 85 employees up-to-speed on basic Lean concepts.

"The newer employees had no problem at all with the new online training module," says Mary Smith, PLIDCO's Safety Training Director. "Some of the people that have been here 30 years were sort of wondering why they needed this. But once they saw that management was serious and we were going to get the job done, they did warm up to it."

PLIDCO, based in Westlake, Ohio, is a family-owned company founded in 1949. Smith says, thanks to getting everyone up-to-speed with the online training module, the various teams quickly got to work. The employees began by identifying waste of all kinds and thoroughly cleaning and reorganizing their workplaces.

"Eventually, they even came up with a way to change the way they store tools," says Smith, noting that it took some time for employees to accept that level of change. "Our employees always used to store their tools in cabinets, where it could take some time to find them. Now, all the tools are hanging right out where they can see and reach them."

Smith says that, as a result of the online training, in combination with a MAGNET Lean 101 on-site training course, the company has just about doubled production since 2006 and now generates \$1 million in sales a month.

"We always felt if we could make more we could sell more, and that's been the case," says Smith.

After the initial MAGNET training, PLIDCO's owner decided to make a further investment by hiring a Lean manufacturing consultant to work with the company's continuous improvement teams once a month.

"We have regularly scheduled early-morning LEAN team meetings to keep the initiative going," Smith says. "I can see that if we didn't have the team leaders out there listening and pushing forward, it would all slow down."

Smith observes that because PLIDCO's top management was 100% committed to this LEAN initiative, and employees saw that it yielded real results, the on-the-floor teams are coming up with new ideas.

"Things keep changing and change takes the path of least resistance. So we know we have to keep the change going in the right direction. There's still a lot more we can do to improve," Smith says. ♦



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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