

HELPING HOURLY WORKERS UNDERSTAND THE “WHYS” OF LEAN MANUFACTURING. A HANDS-ON LEARNING APPROACH

When a visitor walks into the ABB facility in Alamo Tennessee (approximately 90 miles northwest of Memphis) there is a sense of employee and manager pride that seems unparalleled in manufacturing today. In the past 5 years (1997-2002), ABB-Alamo, which manufactures bushings, transformers, and power components for utility and power customers worldwide, has seen some amazing results. They have had double-digit productivity gains every year for the past 5 years – whether orders were up or down. Cost of poor quality has decreased by 60% and earnings as a percentage of revenues have doubled.

Through programs like Six Sigma, lean manufacturing, and 5 S, the 196-member organization has been able to meet customer demand during prosperous times in the late 1990's and continue to increase productivity in the down turned economy of the last two years, according to Drew Cahill, General Manager and ABB Vice President.

Multiple manufacturing companies like ABB-Alamo are utilizing ideas from Six Sigma and lean manufacturing to make changes in their operations. Recent research from *Engineer* journal cites that “90% of companies implementing lean have been successful in improving products, efficiency and profitability. But a lack of understanding, reluctance to change, and a shortage of lean skills prevent many from being more successful.”

Utilization of lean manufacturing and Six Sigma programs, made popular by well-know industry leaders like GE and Toyota, is not unique. Even getting measurable results is not unusual. However, many

organizations struggle with the human element of these programs – implementing change on the factory floor, getting employee buy-in and acceptance, and increasing understanding of how individual initiatives affect the bottom-line and ultimately survival of the company.

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One unique part of the programs used by ABB-Alamo is a workshop that is attended by all employees - managers, supervisors, and hourly workers - called *Learn or Burn*. The workshop is a one-day hands-on business simulation designed to help employees understand basic business and financial concepts using a common business language and challenging employees to “think like owners.” It is based on the well designed and popular training game called Apples and Oranges from Celemi. The Apples & Oranges package uses a game board and a group of four “owners” to run a simulated manufacturing business for three years. During the course of the year, the “owners” purchase raw product, move product through production, and pay for overhead, while constantly managing cash flow. While there are multiple simulations in the training marketplace, this one is

designed to allow factory workers, who have no previous accounting training, to complete simple profit & loss statements, examine ratios, make decisions on reducing finished goods inventory, implementing just-in-time delivery, changing factory floor layouts, and increasing payables collection while seeing the driving effects on the bottom line.

“Learn or Burn really helped me understand the cost of poor quality. When I left I felt I understood how the company really worked...why we had kanban, just in time, and the emphasis on cash flow.” (Kevin, 27-year old machine operator)

“Running our own business let me understand the difficult decisions managers must make here everyday. I work in bushings and it really helped us understand why we need to ship on time. We must get the cash flow...and if we don’t ship on time we don’t get paid on time” (Hope, production worker)

The workshop was called *Learn or Burn* because of the emphasis on proper decision making at all levels of the organization, according to Eduardo Miller, ABB manager and workshop co-instructor. “It’s everyone’s responsibility to make decisions not just management and if all of us are not learning to make the right decisions we can burn the business. The actual title of the workshop is *Learn or Burn: Making the Right Business Decisions*”

With the help of professional trainers from the Hayes Group International, ABB-Alamo customized the workshop to include exact examples of how workers can affect the Return on Investment (ROI) of manufacturing plants. One example in the workshop occurs after workers met a

specific ROI goal and then realize there is a quality problem – the product was returned, cash flow was affected, additional costs added and the workgroup did not make their expected goal or bonus.

“It was like seeing in a Monopoly game how our business really worked. At the time, we were making great changes in inventory, parts, and other areas. It really helped me understand the money part.” (Sandra, production worker, 22 years on the job at ABB-Alamo)

“Learn or Burn really helped us understand the “whys” of lean manufacturing. The greatest question was should we do it at the beginning before we implemented the changes or should it be in the middle of the changes. I think in retrospect by understanding lean and knowing what the changes are and *then* doing the program helped us tremendously.” (Shawn, manufacturing supervisor)

Several decisions helped make the *Learn or Burn* workshop successful. (1) Everyone attended in a class of 20 people (5 teams of 4 people) with a mixture of managers and hourly workers. “Even the mixture of people created excitement and improved team relationships” according to Carl Whiteside, HR manager. (2) Each session included a 5-minute “kick-off” speech by a manager explaining why the company was doing the workshop, what was expected from each individual, and why participation was necessary. (3) The workshop was conducted using co-instructors - a professional trainer, certified in Apples & Oranges, from the Hayes Group International (see www.thehayesgroupintl.com) and an ABB manager. (4) In order to reinforce learning an 11 question “survey” was given before

the session and again after the session – it asked questions like what is cash flow, why use overtime, why outsource, and why is lean manufacturing being introduced. A laminated card was given to each employee stressing the basic leaning points of the seminar.

One year after the workshop, as a follow-up, researchers from the Hayes Group, found several workers who keep the laminated card in their wallet to remember the key concepts.

“People still talk about it. Frequently I’ll hear people say ‘Cash is King’ in response of getting orders out the door in a timely fashion”

(For management views of the *Learn or Burn* workshop one year after implementation, see insert article).

According to Whiteside, one key to the success of the workshop was communicating at the level where employees really understood. “When you relate cash flow in a business to your checkbook, people understand that. The Hayes folks did a good job of making the concepts simple and understandable while maintaining the integrity of the workshop content.”

“I don’t understanding accounting but seeing it on the board made sense. It helped me understand when Drew uses the word

EBIT in our meetings” (Sandra, machine operator)

Certainly, all-employee training programs like *Learn or Burn* cost both money and time away from jobs (on all three shifts). When asked about the decision to conduct a wide expansive training program, Miller replied “in order to get a return you must first make the investment. The return from *Learn or Burn* was employees providing us with better decision making, and an atmosphere where it is easier to change and implement things like lean manufacturing.”

ABB-Alamo does a lot of things right. Reduction of inventory, emphasis on quality, extensive personal development of managers, all employee meetings, a performance based bonus system, open book financial management, and a strong emphasis on several core values (see sidebar). All of these ideas, along with strong leadership, help ABB-Alamo employees be proud of what they do and where they work. All employee training, like *Learn or Burn*, helps everyone understand why decisions are made and why concepts like lean manufacturing are necessary.

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Hayes Group' consultant Michael Comer interviewed ABB General Manager Drew Cahill, HR manager Carl Whiteside, and ABB Manager and Learn or Burn co-instructor Eduardo Miller, one year after the original workshop to determine the lasting effects of the training investment and its enhancement of Lean Manufacturing, Six Sigma, and other programs.

It has been almost one year since you did the Learn or Burn seminar. From your perspective, what were the immediate impacts on the workforce after the workshop?

Whiteside: Our people have had prior training in safety and other areas but this was a first for business understanding training. We've always talked financials in our monthly all employee meetings, but we found out that many people did not understand EBIT, cash flow...some may know it with their head but maybe not have a real understanding. People at first didn't know what to expect. But after people went through the training, things were different.

Miller: People here really enjoyed the workshop. **It wasn't just a lecture, but a hands-on experience, which helped them better understand some of the things we were doing.**

Cahill: Just after the *Learn or Burn* seminar we had an All - Employee Meeting. The questions we got were very intelligent – asking us the whys of things we did and wouldn't we be better *if* we did certain actions. It wasn't, "Can't we have more money or we don't understand," it was, "If we did this these should be the results." It was a clear understanding of the relationships of the business. The other thing I saw in general discussions was a higher



level of sheer economic understanding...for example understanding of costs and relationships between the costs and business decisions.

The objectives of Learn or Burn were to help establish a common business language, to help people understand the "whys" of finances, to challenge all workers to think like a owner, but I noticed at the end of the workshops a greater understanding of change and specifically the changes as part of lean manufacturing. How did Learn or Burn help implement change at the factory level?

Cahill: *Learn or Burn* really gives us a common language that allows us to better communicate and explain the rationale of change from an economic perspective. **So many employees see multiple "flavors of the month" that come and go over their careers. This workshop allowed us to tie these programs directly to expected economic improvements and the employees have a better sense of why we are doing something.** It puts more pressure on managers. If we are doing something that employees believe are not helping the business, they are going to say so. It makes us better as managers and employees have a more clear understanding of why things operate as they do.



Our employees know how to make good buying decisions in their daily lives. They don't buy the most expensive car with the most miles. We tend to make decisions so complex in business they don't understand why we make the decisions we make or do things we do. *Learn or Burn* gave them a fundamental understanding, allowing them to participate in the decision-making and support.

The immediate feedback from employees who participated in the Learn or Burn seminar was very positive, some saying that it was the most effective training programs they had attended. That was almost a year ago. Since then, do you see the ideas from Learn or Burn continuing to be applied on the factory floor...or continuing in the meetings? Are there lasting results?

Whiteside: Let me give you a real-life example. This may be tied to other things, but the employee talked to me in terms of the *Learn or Burn*. This guy is in his 50s, a high school graduate, and he hasn't been back to school or opened a book in years. After *Learn or Burn* he asked me a question, "Thinking about it after this seminar, why am I being paid more to work second shift, when the job I do can be done during the day and the company could pay a lot less money?"

Miller: Drew consistently relates things back to the workshop in our all employee meetings. He poses questions relating to the seminar.

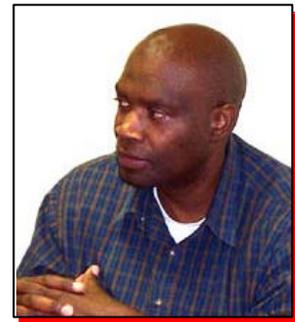
Cahill: We need to constantly reinforce the concepts as managers. This workshop gave us the opportunity to help us communicate better. Employees want this company to succeed and they feel that can offer suggestions that help us all better succeed. They look for opportunities to help this company succeed. They can now offer suggestions in a rational management

decision way. I don't see that ever going away.

You decided that everyone would be part of this one-day seminar – from management to workers on the floor. Why was everyone involved? Isn't that a large investment of time away from the job (as well as money)?

Cahill: We have a set of guiding principles we live with (see sidebar). The last principle says our success depends on teamwork. A team consists of every player on the team. It's a principle we live by.

Whiteside: We've always encouraged people to go back to school and get additional schooling. ***Learn or Burn* allowed us to bring the training right here. Employees really appreciated it.**



Miller: In order to get a return you must first make the investment. The return from *Learn or Burn* was employees providing us with better decision-making, an atmosphere where it is easier to change and implement things like lean manufacturing.

ABB- Alamo's Five Guiding Principles

- 1. Quality Comes First**
- 2. Tell the Truth**
- 3. Customers are Right**
- 4. Make a Decision**
- 5. Our Success Depends on Teamwork**