Building The Curve

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An example of EAC's lean production cells.

AME Excellence Award winner Automation Engineering Corp. spent the last few decades learning how to grow through a fearless combination of project management, ISO, Six Sigma and good, old-fashioned company culture changes.

If Automation Engineering Corporation’s general manager Gary Foster were to teach a class in company culture, his first lesson would be simple: don’t underestimate it. When the company—humbly rooted in what began as a three-person engineering team—began to increase the size and scope of its operations, it encountered some growing pains. Without a foundation or company identity, there were issues.

“You know how you always wait for the night before the final to study?” Foster asks. “That’s what our engineering projects were turning out to be. Without planning and without thinking about it–nobody did it intentionally–you wound up with too much of the work to be done at the last minute, and it’s a death struggle. That’s when I said ‘We’ve got to get away from the heroics.’”

Maybe AEC didn’t completely get away from the heroics, but in fact changed the setting: after years of persistent process improvements and waste reductions, the company was awarded the 2009 Manufacturing Excellence Award from AME (Association for Manufacturing Excellence) for both the southeastern region and the

overall category—quite a change in how it defined drama.

A Change Of Pace

Founded in 1981, AEC is now located in a 60,000 sq. ft. facility in Greenville, SC. The company custom designs and builds automated industrial equipment and systems, and specializes in standard and custom, turn-key solutions in the metals, medical, tire and rubber, energy, packaging, and tube and pipe industries.

When the company began to grow, it encountered several hurdles in the process, including issues with protocol that it was able to iron out with ISO, and more recently, an emphasis on project management.

According to Foster, the company's traditional method of designing a project and building it a very few number of times meant that—without methodologies behind its processes—the lessons from one project to the next could get easily lost. In addition, the project-based cycle was dominating the entire organization, making it difficult to attain any type of continuity at AEC.

Part of AEC's transformation dealt with shifting from strictly design engineering to machine building, which meant incorporating lean production principles as well.

Establishing A Culture

So Foster set out on a journey of lean standardization which included giving up some of the roles of "champion" to others within the organization. As a Six Sigma blackbelt, Quality Manager Tim Yerby has taken on an active role in the change culture at AEC, but it wasn't always so easy.

"People inherently don't like change. Unless a company really has a change culture instilled in it, then Six Sigma becomes another one of those things that there is a certain amount of resistance to," he says.

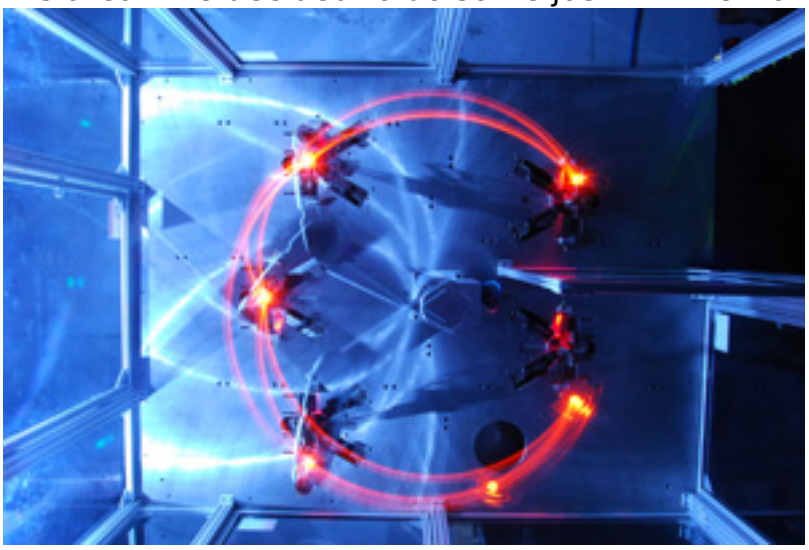
This resistance to change reared its ugly head when Foster took the company in a

new direction in 2002: Instead of just writing control software and designing electrical controls for machines, AEC decided to begin building machines.

“The mapping of lean manufacturing into lean engineering and lean design is a pretty big body of knowledge,” says Foster. “There are lots of industry folks who have done it that have metrics and benchmarks. We took that and started building some familiarity, and then we started tackling those things. Things like, if I have a document that needs to be approved, the longer it sits is transport delay. We recognized that probably 80 percent of the duration of a project is waste, and so we were trying to figure out how to tackle that. And the training was a piece that we dealt with… one of the battles I lost over and over again was: I want this to be a learning organization.”

The problem here was that Foster couldn’t gain what he calls the critical mass. “There are a lot of people who choose small business because it’s not as regimented,” he explains. “So how can a small company become a large company? The Fords and the Michelins and the BMWs aren’t idiots; they’ve crafted this.”

So the big push at AEC became just-in-time training, and personal development plans—essentially, says Foster, going back to Lean 101: focus on the people. “It doesn’t mean that we’re going to cater to everybody,” he explains. “It means we are going to expect and hold them accountable. The focus should be on accountability and disciplined action. Pay attention to the people, which means personal development plans. We just renewed our focus on safety, partly because it was a nice, easy thing for everybody to understand. You can’t argue with safety, and you get everybody started on the safety topic and get everybody used to just following common sense rules. Then it’s easier to have them follow other rules. We also decided we were going to question all training and competence. So every project—instead of saying, since you did this project, we’ll deem you competent in this area—we decided to do some just-in-time training.”



New Strategy, New Markets

After developing a more regimented environment, and backing it up with project management tactics, the company has found a more consistent way to handle its

project cycles, without the need for heroics.

According to Matt Ferguson, AEC's sales manager, the sales and project management processes have then become intertwined in order to minimize design and production gaps. "It's vitally important that we have a clear set of what the customers inputs are during the sales process," says Ferguson. "We need to specifically address one of those needs and make sure it's documented, so when there is a shift over to project management, there should not be a large amount of discovery as far as what the customer needs."

AEC has found a niche in the tube and pipe market, which has helped the company settle into an economic model that works for them. "We discovered that this design it once and build it a few times is a very expensive model… so we decided we needed an industry that we could call home, so we could innovate and be some differentiated value-adder," says Foster. "That's just another one of those fundamental changes, and it goes along with that lean way of thinking, even though we didn't equate those two at the time. Lean thinking basically tells you: do a few things and do them right and know how to repeat those, and get the waste out of those operations. If you're re-inventing the wheel every time, it's completely antithetical to lean… and that's a mistake we've made."

In addition to what the company has learned from its own internal processes, it has gained some industry insights from a close relationship with industry organizations like AME. "The AME conference reminds you that everybody's got problems, but solving the problems is about not having the problems over again… it's all about the people, purpose, process." Foster came back from the last AME conference and signed up five of his associates for the next one, simply because the environment was such a positive inspiration.

"I want to have more of that rub off on us," he says. "I wanted to come back and translate into words and into steps for our folks here."

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