

Empowered Performance, LLC™

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# Empowerment Quarterly

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## Creatively Combining Lean and Six Sigma

**“At Empowered Performance, our mission is to engage and empower the minds and spirits of all of our clients and to transform that intellectual capital into a sustainable force they can use to dominate their competitors”.**

*-Mike Stickler*

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Creative Forming Inc. working with Empowered Performance, LLC has developed a Lean Manufacturing operational strategy for the workplace orientated toward achieving the shortest possible cycle time by eliminating waste. Six Sigma training is also being conducted at Creative Forming to allow employees to use problem-solving to improve the business and eliminate waste. Waste in a business includes: overproduction, inventory, waiting, motion, transportation, re-work and over processing.

Lean techniques result in decreases in the time between a customer order and shipment, and it is designed to radically improve profitability, customer satisfaction, throughput time and employee morale. The benefits of Lean generally are lower costs, higher quality, and shorter lead times. These techniques were developed to reduce waste in any business,” said Harold Ellsworth, Vice President Operations.

Lean is derived from the Toyota Production System, and its key thrust is to increase the value-added work by eliminating waste and reducing incidental work. Not only has Creative Forming adapted Lean Manufacturing techniques to their business, they have also used a training method called Six Sigma to help improve their business as well.

Six Sigma is a systematic approach set up to help businesses use scientific problem-solving to improve their business. Six Sigma focuses on projects that will produce measurable business results by using data, the scientific method and problem-solving to find the root cause of a current business problem. The five phases of Six Sigma are called DMAIC. DMAIC stands for Define, Measure, Analyze, Improve and Control. The phases are a methodology used to help project participants find results for a current issue in their workplace. By using the Lean approach and Six Sigma, the two form a powerful approach to business improvement.

“The main focus is meeting the needs of the customers,” said Ellsworth. “We need to drive improvement in the business to better serve our customers.”

Green Belt training is a step in the Six Sigma process as well. Each participant is classified as a “Belt” and has an important leadership role in their selected team. Creative Forming, Inc. divided ten participants into two teams “We wanted to get a broad mix of people from different areas,” said Ellsworth. “Selected people had the skills, interests and ability to apply what they learned and help other people use the methodology to solve problems.” Projects for the Six Sigma training were chosen by Ellsworth for the significant impact they would have on Creative Forming and their customers. The projects were also selected as issues that could have the DMAIC methodology applied to it and participants could learn while

completing the project. Team One’s, project was related to a food container tub and base for a major customer.

“There were some quality and trim issues with this product,” said Ellsworth. “We wanted to increase the throughput, shorten the lead time and make a better quality product.”

In the end, the food container project had significant results. Team leader, Phil Barhouse, Director, Quality Assurance and Research Development, led the container project group by using base line data to solve the quality issues with the container.

“Using the DMAIC process, we monitored the existing process and gathered base line data to set up an experiment,” said Barhouse. “We then used the experiment to control key parameters in the process while increasing the cycle time and monitoring the quality characteristics.”

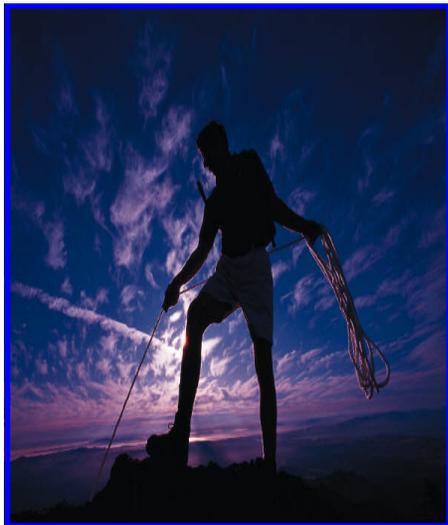
Ellsworth was happy with the efforts of the team. “The team used DMAIC problem-solving to increase the throughput by 40% and reduced the clarity issues as well as improving the quality,” said Ellsworth.

After Green Belt training days are complete, Ellsworth hopes that all participants will have gained valuable information to help them in their departments as well as with their co-workers.

“We want them to learn the concepts and tools of good problem-solving so we can apply it and improve Creative Forming,” said Ellsworth. “The participants can then take what they learned and help others in their departments use problem-solving techniques to reduce the waste in our business.”

Follow up with Six Sigma training will continue at Creative Forming.

“We have selected four more projects for the team leaders to lead with other participants and get them involved,” said Ellsworth. “We want more people to learn the approach and have the knowledge of Six Sigma and Lean spread throughout the company.” About Creative Forming, Inc. Located in Ripon, Wis., Creative Forming and its extrusion division ALPHATEC EXTRUSION™, offer state-of-the-art extrusion expertise and custom thermoforming solutions to the food and consumer goods industries throughout the United States. For more information on Creative Forming, visit their website at [www.creativeforming.com](http://www.creativeforming.com).



## Mass Production Math VS Lean Math

By: Mike Stickler

I recently got a phone call from a reporter for Cranes Chicago Business with a simple but provocative question: "If you are a manufacturer in a high-wage country such as the U.S., can you ever be lean enough that you don't need to relocate your operations to China?"

The reporter's reasoning was that China has an enormous labor pool in its coastal development zones, with 300 million additional migrants to these areas expected in the next ten years. So labor costs may stay at their current low levels for decades. He further reasoned that a large fraction of the cost of manufactured goods is ultimately wages (for touch labor plus support staff, managers, and engineers, and the workers designing and making process machinery and extracting and processing raw materials.) He then concluded that no matter how much cost an American or Japanese or German firm removes by getting lean, costs in China (or, if you prefer, India), based on cheap labor, will always be much lower.

Hence, "Won't you need to relocate?"

My answer to this simple question was also simple: "Do some math before you move and make sure it's "Lean Math". Here are the items you need to include in your calculation:

- \* Start with the piece part cost for an item where you are.
- \* Compare this with the piece part cost for the same item in China or India (or Vietnam or Poland or...) (It will almost always be much lower.)
- \* Add the cost of slow freight to get it to your customer.

Please Note: you have now done the entire math that many purchasing departments seem to perform. This is what I would call "Mass Production Math".

To get to "Lean Math" you should add some additional costs to piece-part plus slow-freight cost to make the calculation more realistic:

- \* The overhead costs allocated to production in the high-wage location, which usually don't disappear when production is transferred. Instead they are re-allocated to remaining products, raising their apparent cost.
- \* The cost of the additional inventory of goods in transit over long distances from the low-wage location to the customer.
- \* The cost of additional safety stocks to ensure uninterrupted supply.
- \* The cost of expensive expedited shipments. (You'll need to be careful here because the plan for the part in question typically assumes that there aren't any expediting costs, when a bit of casual empiricism will show that there always are.)
- \* The cost of warranty claims if the new facility or supplier has a long learning curve.
- \* The cost of engineer visits or resident engineers to get the process right so the product is made to the correct specification with acceptable quality.
- \* The cost of senior executive visits to set up the operation or to straighten out relationships with managers and suppliers operating in a different business environment. (Note this may include all manner of payments and considerations, depending on local business practices.)
- \* The cost of out-of-stocks and lost sales caused by long lead times to obtain the part.
- \* The cost of remaindered goods or of scrapped stocks, ordered to a long-range forecast and never actually needed.
- \* The potential cost, if you are using a contract manufacturer in the



in the low-cost location, of your supplier soon becoming your competitor. (Almost, all of these "costs" need to be considered when doing productivity improvement justifications. A caution...by themselves it is almost always impossible to cost justify doing the improvements, sometimes you must just take a leap of faith...)

This is becoming quite a list - and please note that these additional costs are hardly ever visible to the people in senior management or purchasing who relocate production of an item in a low-wage country based simply on piece-part price plus slow freight.

However, lean math requires adding three more costs to be complete:

- \* Currency risks - which can strike quite suddenly when the currency of either the supplying or receiving country shifts.
- \* Country risks - which can also emerge very suddenly when the shipping country encounters political instabilities or when there is a political reaction in the receiving country as trade deficits and unemployment emerge as political issues.
- \* Connectivity costs of many sorts in managing product hand-offs and information flows in highly complex supply chains across long distances in countries with different business practices.

These latter costs are harder to estimate but are sometimes very large. The only thing a manager can know for sure is that they are very low or zero if products are sourced close to the customer rather than across the globe.

If you do the "Lean Math", will it always mean that you don't need to relocate? Absolutely not, for example, if you are planning to sell within high-growth, low-wage markets like China or India you will almost certainly need to locate most or all of your production for those markets within those markets. This is simply because "Lean Math" works in the opposite direction as well. Transport, inventory and connectivity costs and country and currency risks are much lower if you produce within the market of sale.

However, in my experience a hard look at the true cost situation will suggest that relocation is not the first line of defense for producers in high-wage countries.

Rather it's to get truly serious about a lean transformation through the entire value stream for the product in question.

If you find that you do need to relocate, even after doing "Lean Math" and applying the full complement of lean methods, my experience is that moving ALL of the steps in the value stream for a product to an adjacent location in a low-wage country within the region of sale - Mexico for the U.S., Poland for Germany, and, yes, China for Japan - is likely to provide the lowest total cost.

I'd love to hear your own thoughts and experiences with this question, which has emerged as the largest single issue many managers, are wrestling with in high-wage countries. If you've got some better (leaner!) math please let me know and I will pass it along.

## Food For Thought—Sadie's Story

By: Mike Stickler

Sadie was our family dog. She was just about to turn four; we got her when she was about eight weeks old. She was very special, and we loved her very much. About ten days ago we noticed that she was not her usual self. No kisses, no energy, not excited to see us when we got home. Little or no tail wags.

We took her to our local veterinarian on Thursday. The veterinarian did an initial exam and had us rush her to the animal hospital, she was in trouble! The veterinarian at the hospital admitted her...It went downhill from there. The veterinarian at the hospital took some more blood for tests, and scheduled a bone marrow test for Friday morning, and at the same time charging us \$1,400.00. They let us take Sadie home Friday night with some antibiotics. Saturday she seemed better, but by Sunday we could tell that she was not getting better. When we picked her up from the hospital, the doctor told us that he would have the results on Monday and to call him in the morning. We did, six times throughout the day, leaving a message each time! He never called back! We finally got hold of him at 7:30 Monday night. He told us the blood tests were negative, he recommended the additional expense of a blood transfusion and that he would fax us copies of the test results before he went home at 8:00.

He did not! We called back to the hospital at 9:30 and the night receptionist hunted down the emergency doctor who found Sadie's file and faxed us the reports. The test results had in fact, been available to the Doctor on Sunday morning including the preliminary bone marrow results. We spent Monday night holding her and giving her water; it was too late for anything to be done. We put Sadie to sleep Tuesday morning. Our local veterinarian was great; she helped us through this very difficult time. The veterinarian at the hospital on the other hand...I am not sharing this very personal experience to garner sympathy or to complain about the cost, we would have spent just about anything to continue to have Sadie with us. I am sharing this story as an example of crappy customer service.

The good news is that the veterinarian at the hospital is not a complete failure; he can always serve as a bad example. On the other hand the local veterinarian's and their staff are very into customer service, Sadie's veterinarian helped us to end her pain, she cried with us. Yesterday, Sadie's veterinarian sent us a sympathy card with personal notes from everyone at their office. Sadie had touched every one of them, just like we were touched by this little dog's very special personality. Sadie, I sure miss you!



## The Morning Walk

By: Mike Stickler

Back in the early-mid 70's I worked for Pullman Standard on the south side of Chicago. We were building the R46 Rapid Transit Cars for the New York City Subway System along with parts and sub-assemblies for the Amtrak double-deckers. Our leader and boss was H. Conner Nolan. He was the Manager of Works (when being the Manager of Works meant something). I was responsible for the Production Scheduling/Control Department.

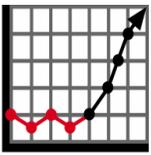
Every morning, at about 6:30 AM, the management team met outside Mr. Nolan's office to take the morning air...with Mr. Nolan. Each of us armed with a note pad and several sharp pencils. The walk normally took about one and one half hours. Our job during this walk was to have the answers to the questions that Mr. Nolan asked. If we didn't know that was alright...but we were expected to have the answers later that morning. During the four years that I worked for Mr. Nolan, I can't ever remember him forgetting anything that he had asked about, and I never saw him write anything down. Mr. Nolan was probably the toughest most disciplined boss I ever had.

The agenda for the walk was quite simple, we would start in the shipping department and work our way back to receiving. As we went through each department Mr. Nolan always asked the same questions everyday: What was your performance against the schedule for yesterday? What problems did you have? What are you doing to solve them? What can we do to help? What additional resources do you require and for how long? He listened very carefully and was never judgmental. He expected his leaders and managers to have the answers to his questions, and after a few weeks they started to track their own performance and they were prepared for his daily visit. He was instilling a disciplined approach to running operations throughout the entire organization.

He did not accept excuses, what he expected was results! He did not tolerate finger pointing or back stabbing. He expected his team to work as a team. His approach was simple, the entire team would be successful or the entire team would fail. This was difficult for most of us; we had never been treated this way in our past jobs.

As Mr. Nolan continued our learning, he started to add to his questions! He started to select different themes for the morning walks. He started asking questions about how the work was done and why was it being done there, is there a better place or better way to do it. He asked about workplace organization, about changeover times, about quality...He asked about inventory, scrap and rework. His approach was to change our approach from being reactive to being pro-active in our thinking, trying to anticipate what could go wrong and attempt to address it before the problem occurred.

It probably took us as a team, almost a year to make the transition from being reactive to being pro-active. This transition led us as a team to be very successful and as individuals most of us excelled in this new culture. It took me a while to figure out how Mr. Nolan knew which questions to ask. It was like he already knew the answers. I was working late one night, cleaning up some final reports and getting ready for the morning walk and questions. As I went out to one of the production areas to check on something, I stumbled on his secret...he also did a late afternoon walk...after the day shift people went home. These afternoon snap shots gave him the necessary information and insight to ask the right questions the next morning. So get your team together, take a walk and start asking tough questions, you never can tell what you might learn!



# Empowered Performance, LLC™



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## Recent Readings of Interest

Freedom from Command & Control – Rethinking Management for Lean Service

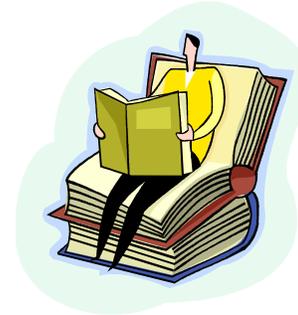
By : John Seddon

Andy & Me – Crisis and Transformation on the Lean Journey

By: Pascal Dennis

One Small Step Can Change Your Life – The Kaizen Way,

By: Robert Maurer, Ph.D.



## Quotes for the Quarter

“The future of your company depends upon the successful launch of new innovative products and services. By the year 2010, products that represent almost 75% of a company's revenues today will be obsolete. Research shows that 86% of new product ideas never make it to market, and of those that do, 50 to 70% fail. Generating ideas is not the issue – the issue is executing on them!”

- Kevin O'Marah

“Ordinary people believe only in the possible. Extraordinary people visualize not what is possible or probable, but rather what is impossible. And by visualizing the impossible, they begin to see it as possible.”

- Cherie Carter-Scott

“Every organization says 'we have better people.' But this is impossible. Once an organization grows beyond a handful of people, it is subject to statistics' most ruthless law: the law of the great number, which dictates there is only normal distribution. What differentiates organizations is whether they can make common people perform uncommon things...”

- Peter Drucker



"Creativity occurs at the intersection of previously unconnected planes of thought." - Dorothy Leonard

## Cigar of the Quarter



Ashton cigars are on a roll. Approaching their 20th anniversary, the brand has established itself as a model for quality, consistency and success. The dark, rich Ashton Aged Maduro is considered by many to be the finest maduro on the market. And at least for the time being, production is up making it more available than in previous years. Made by the Fuente Family, few can discount Ashton's commitment to provide a superior smoking experience with every cigar.

My favorite is the #6 Ashton Aged Maduro 7.5 inches long, with a 52 ring gauge, with Dominican filler and binder and a Connecticut broad leaf wrapper...Smoking this cigar is like drinking a great cup of coffee...smooth, rich, lots of flavor, delicious!