

Empowered Performance, LLC™

Spring 2006

Empowerment Quarterly

Volume 5

Issue 1

The Transition to Lean at OMA

- Michael Burtner

Getting Focused

With help from Empowered Performance we began our journey to Lean. OMA chose the E3K Photo Electric Sensor. The E3K is a long range general purpose sensor for material handling and door control applications with heavy duty switching requirements. Due to its high volume and consistent customer demand (and promise of sales to increase in 2006) made the E3K the best candidate for improvement.

The E3K is assembled in three stages: Stage One (SMD) is the surface mounting of electronic components to raw circuit boards. Stage Two (Wave) is the placing of 8 large components, soldering using a Solder Wave system and joining of the circuit boards. Stage Three (Final) is the final assembly and packing of the units.

Value Stream Mapping

After learning how to identify waste, we began to explore the E3K line using value stream mapping as a guide. We discovered that it takes 58 steps or 7561 minutes to build each E3K unit going through each of the three stages of assembly (SMD came in with 12 steps, the wave used 20 steps, and final used 26 steps). We evaluated each step and determined which ones could be eliminated as waste. Of the 7561 minutes of assembly, a startling 2235 minutes is value added and 5326 minutes is pure waste. 26 steps were value added and 32 steps were non-value added.

Our goal was easily stated: eliminate waste. Our end state would be to assemble the E3K in 26 steps or 2235 minutes. This would be an aggressive improvement greater than 50%. Our plan going forward would be to assign responsibility of each action to a team member. After which we categorized the actions into 30/60/90 day action plans.

The SMD Line

The SMD line is run by two machine operators. Each operator take turns setting up the machine and inspecting completed boards. The set up time makes up 70% of the downtime each day. The operators have to load/unload reels of component parts for each different product. In other words, lots of wasted time and effort.

From the VSM exercise, we came up with several improvements.

Move components/boards to point of use – completed

Reduce lot size – pending

Have supplier provide material more frequently – pending

Vision inspection system – reviewed, not financially feasible

Align SMD and Solder Wave operations – reviewed, not financially feasible

Perform SMED exercise on machine setup – completed

The SMED exercise took place a couple weeks later. We had already video taped the machine operators performing their setup of the machine. In the meeting, we reviewed the VSM for the SMD line and the video tape. It was very apparent that the amount of parts changeover (time) and the amount of walking were huge amounts of waste waiting to be addressed.

Over 24 action items were identified and people assigned responsibility. Right away 5 action items were addressed. Other items would take more time to accomplish. One of the biggest improvements is to optimize the part placement machine. This would mean cutting down on the amount of changeovers by standardizing the location of parts within the machine. We are currently still working on this action item and are hoping to realize a 50% reduction in the amount of changeovers and the amount of time taken for changeovers.

The Solder Wave

When running the solder wave, there is a lot of waste in walking. The line is long and requires a person to move from one end to the other to get product through. There is also a large amount of rail adjustment and program changes when running boards.

A couple of our improvement goals are: Reduce lot sizes – complete, Establish daily quantities – complete (we run 100 boards per day instead of 300 boards), Store material at Point of Use – complete. Kan Ban system was established.

SMED – on hold while we go through RoHS compliance activities. Minimize amount of rail and solder height adjustments during setup: Standardize pallets, One piece flow, Eliminate storage.

Moving the parts to the point of use gave us huge gains. We saved 87 hrs per year just by moving the parts next to the machine. Operators did not have to constantly run back and forth from the Warehouse to get parts.

We also established a process where we run 100pcs every morning and then immediately move the boards over to Final Assembly. The 100pcs are built at Final and sent to stock that same day. Previously, we were building 300pcs and spending 4 days completing them out with one person working on them. We flexed in 4 people to run the boards completing them in 8hours.

“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

Inside this issue:

The Transition to Lean at OMA	1 - 2
Being A Dominate Kind of Company	2
Food For Thought	3
New Books	3
Recent Readings	4
Quotes for the Quarter	4
Cigar of the Quarter	4



SMD TEAM



The Transition to Lean at OMA (*continued*)

Final Assembly

In its previous state, the assembly of the E3K Final Assembly performed at 80pcs per day with 4 operators. The work center was a straight line configuration and parts were stored in the warehouse. Assembly would not begin until all components for the E3K final assembly were picked and staged on a designated shelf.

The VSM helped us find waste and the 30/60/90 day action plans had the following items: One piece flow – went from 100pcs to 10pcs at a time, Move Final Assembly closer to Wave – complete, Reduce lot sizes – went from 300pcs to 100pcs, Store parts at point of use – complete, Eliminate function test – under Quality review, Sample instead of 100% inspection – went from every unit to 13pcs per 100pcs order.

One of the biggest savings came from reviewing our Final Assembly process and finding that the flow of the product was not streamlined. One operation required materials to go back upstream and then back down. This assembly was the for the back cover. It was assembled at the beginning of the line instead of where it was joined to the unit. The operators wasted time moving back and forth 10 or more times per day, getting the assembled back covers and delivering them to the point they are assembled. We immediately moved the assembly next to the joining assembly and gained 1213hrs of production time back. This was in excess of \$19K savings per year at no cost to the company.

We also gained a 3% production improvement by moving the assembly line into a u-shaped work cell, placing parts at the point of use and moving the work cell closer to the Solder Wave operation.

Conclusion Success was noticeable during the month of March. Our biggest E3K customer needed OMA to build 2500 units for them. This was up from their normal monthly 1050 units. We built 2500 units or approx. 113/day with three operators that would build their daily demand on the Wave the first two hours of the day, and then move over to Final Assembly to finish the 100+ boards each day. The result was over 2500 final units sent to the customer on time and we barely broke a sweat. We were able to flex and meet the demand due to the changes that we made using Lean Manufacturing, Value Stream Mapping and Single Minute Exchange of Die exercises. The best part is that we are not finished and continue to improve on the items we just improved a couple of months ago. So far, OMA's manufacturing department has realized a savings of over \$75K, a 20% gain in floor space, establishment of work cells and ability to keep up with increased demand without adding to our headcount. All of this was achieved in a 9 month period. And the next year will be better than this year.



E3K Team

Being A Dominate Kind of Company

- Mike Stickler

Many of you have heard me say the being competitive was a waste of time. I have explained that statement by adding, "being competitive means that your customers still have a choice, and it may be to do business with your competitor rather than you."

Dominance is the KEY!!! Dominance means the choice is obvious!

YOU!!!

In a meeting the other day I was asked HOW?

OK... here you go!

1. Your business model must be based on a culture that drives execution to excellence across the entire supply chain to allow for supply on demand.
2. Your business model must foster process design that guarantees quality and reacts instantly to orders and allows your people to work naturally in teams.
3. Your business model must allow direct communication from your customers to your people.
4. Your business model must allow you to make money and be profitable on every product or service in your portfolio.
5. Your business model must support the continuous development of the talented people in your company.
6. Your business model must support continuous improvement through aggressive daily problem solving.
7. Your business model must have performance measurements that tell your people instantly when a problem occurs so that corrective action can be initiated.
8. Your business model can't allow you to become complacent. My good friend Nick Turk once said, "Success breeds arrogance, arrogance breeds complacency, complacency breeds failure." He is absolutely right!

How many of these can you check off as being done?

Food For Thought - George Costanza's Tips For Working Hard

1. Never walk down the hall without a document in your hands. People with documents in their hands look like hardworking employees heading for important meetings. People with nothing in their hands look like they're heading for the cafeteria. People with a newspaper in their hand look like they're heading for the toilet. Above all, make sure you carry loads of stuff home with you at night, thus generating the false impression that you work longer hours than you do.

2. Use computers to look busy. Any time you use a computer, it looks like "work" to the casual observer. You can send and receive personal e-mail, calculate your finances and generally have a blast without doing anything remotely related to work. These aren't exactly the societal benefits that the proponents of the computer revolution would like to talk about but they're not bad either. When you get caught by your boss - and you *will* get caught - your best defense is to claim you're teaching yourself to use new software, thus saving valuable training dollars.

3. Messy desk. Top management can get away with a clean desk. For the rest of us, it looks like you're not working hard enough. Build huge piles of documents around your workspace. To the observer, last year's work looks the same as today's work; it's volume that counts. Pile them high and wide. If you know somebody is coming to your cubicle, bury the document you'll need half-way down in an existing stack and rummage for it when he/she arrives.

4. Voice Mail. Never answer your phone if you have voice mail. People don't call you just because they want to give you something for nothing - they call because they want YOU to do work for THEM. That's no way to live. Screen all your calls through voice mail. If somebody leaves a voice mail message for you and it sounds like impending work, respond during lunch hour when you know they're not there - it looks like you're hardworking and conscientious even though you're being a devious weasel. If you diligently employ the method of screening incoming calls and then returning calls when nobody is there, this will greatly increase the odds that the caller will give up or look for a solution that doesn't involve you. The sweetest voice mail message you can ever hear is: "Ignore my last message. I took care of it". If your voice mailbox has a limit on the number of messages it can hold, make sure you reach that limit frequently. One way to do that is to never erase any incoming messages. If that takes too long, send yourself a few messages. Your callers will hear a recorded message that says, "Sorry, this mailbox is full" - a sure sign that you are a hardworking employee in high demand.

5. Looking Impatient and Annoyed. According to George Costanza, one should also always try to look impatient and annoyed to give your bosses the impression that you are always busy.

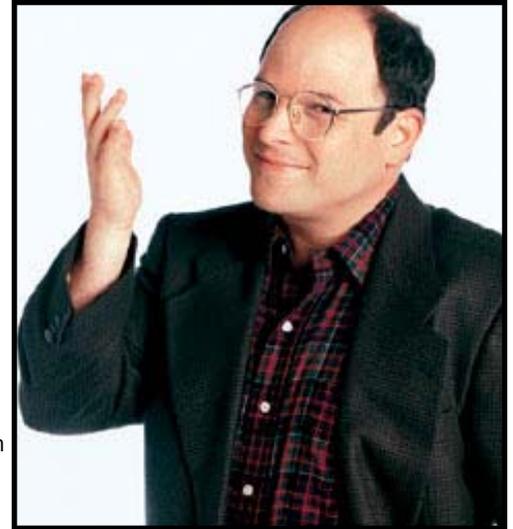
6. Appear to Work Late. Always leave the office late, especially when the boss is still around. You could read magazines and storybooks that you always wanted to read but have no time until late before leaving. Make sure you walk past the boss' room on your way out. Send important emails at unearthly hours (e.g. 9:35pm, 7:05am, etc...) and during public holidays.

7. Creative Sighing for Effect. Sigh loudly when there are many people around, giving the impression that you are very hard pressed.

8. Stacking Strategy. It is not enough to pile lots of documents on the table. Put lots of books on the floor etc. . . . Can always borrow from library. Thick computer manuals are the best.

9. Build Vocabulary. Read up on some computer magazines and pick out all the jargon and new products. Use it freely when in conversation with bosses. Remember: They don't have to understand what you say, but you sure sound impressive.

10. MOST IMPORTANTLY: DON'T forward this to your boss by mistake!!!



New Books Available at www.empoweredperformance.com

The Empowered Performance Dictionary

The Empowered Performance Dictionary consists of over 3,000 words and acronyms and has been compiled over the past ten years. It consists of terms and terminology used in: Business, Sales and Marketing, Design/Industrial/Manufacturing Engineering, Supply Chain Management, ERP - MRPII - MRP, Lean - JIT, Reengineering, Problem Solving, TQM and Six Sigma.

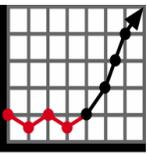
We will continue to add to this base of information on a regular basis. If you come across a term or acronym that is not currently included please send it to us to include in our next update. We appreciate any input that you provide. By purchasing this dictionary, you automatically become entitled to any updates as they become available. Price \$29.95

My Observations, Rants and Not So Deep Thoughts

My Observations, Rants and Not So Deep Thoughts were inspired by Dennis Miller and Tom Peters. Over the last eight years, on several occasions I was inspired, disappointed, pissed off and amazed by some of the things that working as a consultant I have been privileged to see.

I expect that this will continue, and I will be adding to this collection on a semi-regular basis. By purchasing *My Observations, Rants and Not So Deep Thoughts*, you automatically become entitled to any updates as they become available.

Please enjoy and any feedback would be appreciated. Price \$9.95



Empowered Performance, LLC™



Empowered Performance Illinois, LLC
Empowered Performance California, LLC
Empowered Performance European Operations

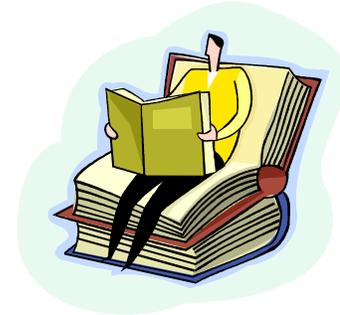
Empowerment Quarterly
Designed and Edited by:
Kelly Anne Wojan

We're on the web, check us out!
www.empoweredperformance.com

Recent Readings of Interest

Inside the Mind of Toyota, Management Principles for Enduring Growth
By: Satoshi Hino

The Gold Mine, a novel of lean turnaround
By: Freddy Balle & Michael Balle



Quotes for the Quarter

“The operative assumption today is that someone, somewhere, has a better idea; and the operative compulsion is to find out who has that better idea, learn it and put it into action – fast.”
- Jack Welch

“One of the tests of leadership is the ability to recognize a problem before it becomes an emergency.”
- Arnold Glasgow

“Courage is doing or saying what you think is right, not what others want you to do or say.”
- Kevin Edge

“If the only tool you have is a hammer, you tend to see every problem as a nail.” - Abraham Maslow

Cigar of the Quarter

La Gloria Cubana Reserva Figurado

Country of Origin: Dominican Republic
Flavor: Medium to Full
Wrapper: Sun Grown Ecuadorian Sumatra
Binder: Nicaraguan
Filler: Dominican, Nicaraguan

Dressed in sun-grown Ecuadorian Sumatra, bound with four-year old Nicaraguan tobacco, and filled with a Dominican and Nicaraguan blend, La Gloria Cubana Reserva Figurado cigars derive their distinctive taste from a special 'cedar aging' process perfected by Ernesto Perez-Carrillo. The cigar's components are aged together in specially-designed cedar bins, for a minimum of three months. After being handcrafted by only two “grade 7” master cigar rollers selected by Ernesto Perez-Carrillo, the cigars are boxed and aged for three more months. Together, the new blend and cedar aging process create a wholly new taste evident at the first draw. Distinctively rich and spicy. I rate it a 98.5.

