

Lean Enterprise Division

September 2013 Highlights

- 2 Note From the Editor
- 4 T³ Tools, Techniques, and Templates:
Poka-yoke or Mistake Proofing
- 6 Lean Enterprise Case Study
- 9 Learning From the Experience of ...
David Mann
- 10 Learning From the Experience of ...
Matthew E. May
- 11 A Lean Manufacturing Journey
- 14 Lean Enterprise Division Webinars
- 16 The Virtues (and Vices)
of Lean Certification
- 17 *The Lean Handbook* Review
- 18 WCQI 2013 Recap
- 18 Lean Enterprise Division
Fellow Nomination Process
- 19 Lean Agile Leadership: Keeping the
Busy Person Motivated!
- 20 2014 Lean and Six Sigma
Conference

Chair's Message

Greetings,

It is summer—midway through the calendar year. It is time to reflect on what has been accomplished and our plans for the rest of the year. I'd like to say that I am sitting by a lake somewhere in Michigan, listening to the pines, the birds singing, fish jumping, feeling the cool air blowing across the water. ... The reality is a forklift just passed the trailer in which I am writing. We have a number of equipment installation projects under way, so here I am at work—but the weather is nice.

Previously I wrote about our 2020 vision and where we are heading. This includes going global. Our foray beyond the United States so far was to send a contingent to the Institute for Industrial Engineers (IIE) Annual Conference in San Juan, Puerto Rico, shortly after the ASQ World Conference on Quality and Improvement. Dave Harry (marketing chair), Chris Hayes (webinar chair), Beth Reid (COA), and Don Smith (education chair) traveled to Puerto Rico and came away with many, many lessons learned as well as many great connections with the Puerto Rico ASQ Section. We also now have some of our lean educational materials available in Spanish, thanks to the efforts of the Education Committee, who enlisted volunteer ASQ members in Puerto Rico as translators.

We are expanding our relationships with other organizations active in lean outside ASQ. We continue with the efforts of Beth Reid, Tony Manos, and Chad Vincent—our representatives on the Certification Oversight and Appeals (COA) Committee as part of the Lean Certification association with the Society of Manufacturing Engineers (SME), the Shingo Prize, and the Association for Manufacturing Excellence (AME). They are part of a major effort to update the Lean Body of Knowledge and the related certification training. As mentioned above, we continue to work with IIE; and our chair-elect, Terra Stern along with her husband Larry (also a member of the Lean Enterprise Division [LED]), participated with the Denver ASQ Section and the Project Management Institute (PMI) Denver Chapter in a joint conference, where they had our tabletop booth and answered lots of questions about lean, ASQ, and the LED.

We are also reaching out to other organizational sectors such as healthcare, in this case in partnership with the Healthcare Division. The 2013 Lean and Six Sigma Conference (LSS), which we have been partnering now with the Six Sigma Forum for the last six years, added another component with the addition of eight healthcare-related presentations and workshops. At next year's LSS we are planning on a full-day workshop focused on applying lean in healthcare the day following the conference. We have also begun working with the Government Division and will be offering a joint educational webinar on lean in government. Stern also participated in the Government Division's Annual Meeting at the World Conference in Indianapolis, IN.

We are also expanding our ranks of member leaders. An LED organization chart that follows shows many opportunities for members to get involved and help grow the division leadership team to become more diverse and global. New member leaders include Beth Reid (COA) and Vicki Farewell (social responsibility chair)—please welcome them. At our LED annual meeting one of our members, Owen Berkeley-Hill, joined us via GoToMeeting from England. Berkeley-Hill is currently teaching lean in India and working with Nick Vyas, our global



Lean Enterprise Division Contacts

Frank K. Murdock, chair
Plymouth Tube Company
fmurdock@plymouth.com

Terra Vanzant-Stern, chair-elect
terra.stern@ssdglobal.net

Kiami Rogers, past chair
Maxim Integrated Products
krogers_asq@verizon.net

Maria Stoletova, membership chair
m_stoletova@hotmail.com

David Behling, programs
david.behling@goodwillsew.com

David Hight, secretary
david.pma@gmail.com

Bernie Klemmer, treasurer
bklemmer@gmail.com

Lance Coleman, newsletter editor
lance.b.coleman@gmail.com

Madhavi Chodankar, VoC co-chair
madhavichodankar@yahoo.com

Nick Vyas, global community chair
Allogistx International Inc.
nvyas@allogistx.com

Alan Mendelssohn, discussion board
Resources Global Professionals
asmquality@aol.com

Don Smith, education
Net Results Inc.
dons322@gmail.com

Javaid Cheema, BoK and certification
Lean-O-Pex
jmcheema@sbcglobal.net

Linda Milanowski, staff liaison
ASQ
lmilanowski@asq.org

Chair's Message cont. from p. 1

strategy chair, to develop an implementation strategy for becoming global. To that end, we also have an initiative to improve the new member leader welcoming and onboarding process. As a member, we would love to get you more involved in the division. Madhavi Chodankar, our voice of the customer (VoC) chair, has just completed an extensive member survey of wants, needs, and expectations (see her article elsewhere in this newsletter). Our conclusion is that we have a long way to go and lots of work to do in order to make a difference throughout all organizational sectors globally. As lean professionals we see waste everywhere—in our homes, churches, schools, government, work life—and it appears to be getting worse as technology enables a faster and faster pace. We need your help. Please feel free to contact anyone on our leadership team and let's see where you can plug in. (See organization chart on next page.) In the meantime, enjoy your summer and have a fruitful fall.

Sincerely,

Frank Murdock

Chair, ASQ Lean Enterprise Division

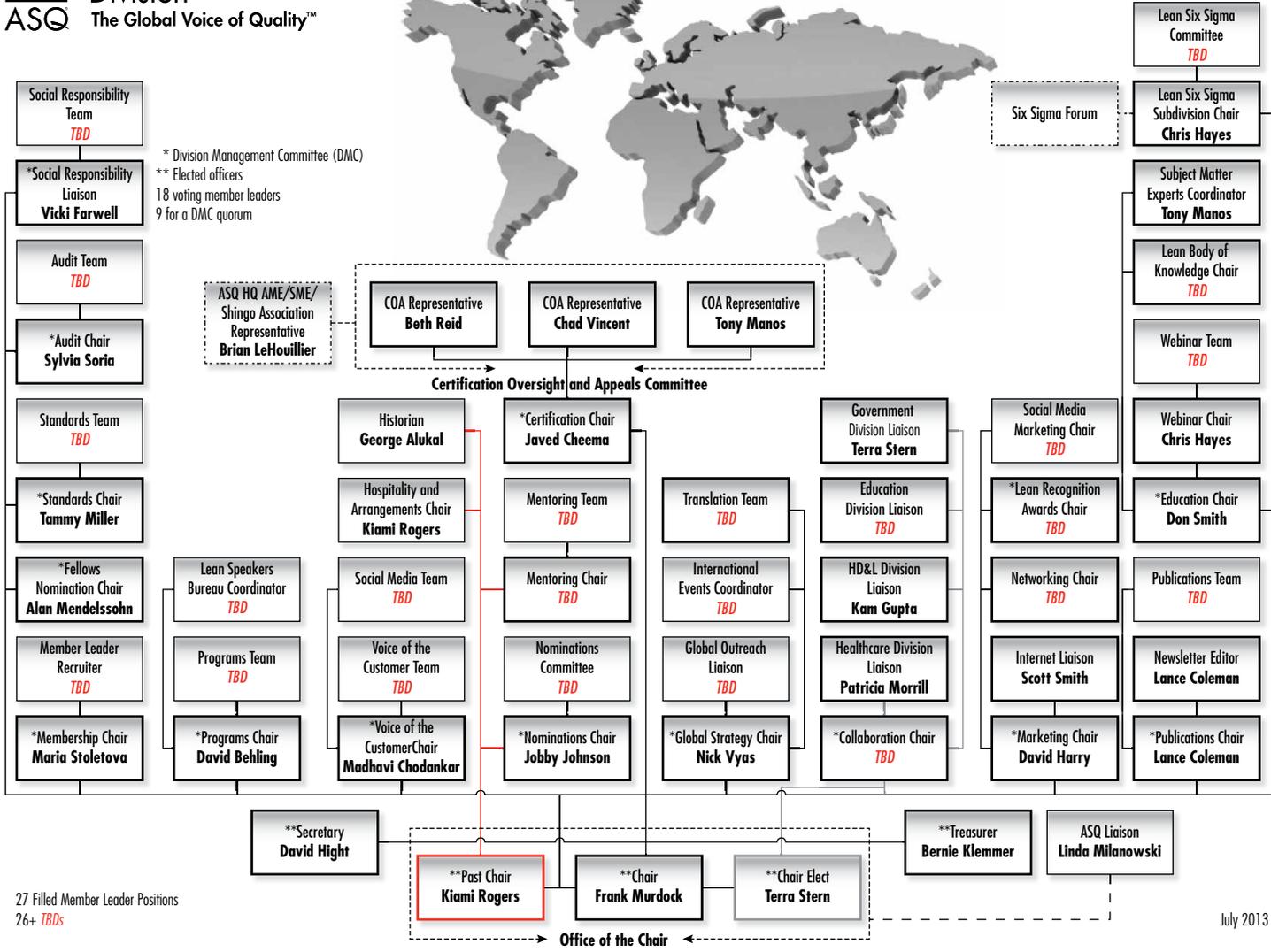
Note From the Editor

Hello again. It seems as if I will have the pleasure and honor of continuing to serve as your newsletter editor for the time being. Well, most of us have made it through one of the hottest summers on record (we are still in the 100s here in Phoenix) and are now looking forward to the fall. For many of us, fall means back to school, and in keeping with that thought our theme for this issue is certification, training, and continuing education. This issue features a recap of the World Conference on Quality and Improvement for those who couldn't attend. We will also present a review, written by the LED's Chris Hayes, of *The Lean Handbook*. I am further pleased to launch our new "Learn From the Experience Of ..." column authored by David Behling, LED programs chair. This issue will feature two interviews with industry leaders, with subsequent issues featuring one interview.

The LED is thrilled to have signed up almost 50 new members at WCQI, and I want to welcome them as well as extend the invitation to become volunteer leaders within the division. I would also like to continue to encourage all of our readers—both old and new—to share their expertise and earn professional credits by writing for our newsletter. You can see the submittal guidelines on p. 4. Included in this issue is an organizational chart to explain the LED structure and detail volunteer opportunities. As always, for feedback, questions, or comments, don't hesitate to email me at lance.b.coleman@gmail.com.



Members Everywhere



27 Filled Member Leader Positions
 26+ TBDs

July 2013

Newsletter Publishing Guidelines

Main Factors

1. Technical merit
 - Includes correct facts
 - Relevant to our mission
2. No selling of services
3. Nothing offensive
4. Original content only. Nothing previously published or presented.

Additional Factors

1. Not too similar to something recently done
2. Desired subject matter – how timely is material?
3. Well written (not requiring extensive editing)
4. Needed length

Categories — Newsletter submittals should fit into one of the following categories:

- A Case for Lean (ACL) – case studies and articles on successful deployment of lean in business
- Lean in Life (LIL) – examples of lean outside the workplace
- Tools, Tips, and Techniques (T³) – practical applications of specific tools
- Lean in Print (LIP) – book reviews
- Lean Bytes (LB) – event coverage, announcements, and other news

Length — Desired length for tips, book reviews, articles, and case studies is 400 – 800 words. Tips and book reviews would be in the 400 – 600 range, articles anywhere from 400 – 800 words, and case studies 500-plus words. If a submittal goes beyond 800 words then we may look at breaking it into more than one part.

Review and Selection Process — All submitted works will be reviewed by at least two members of the subcommittee. The subject for a book review should be approved in advance by either two members of the subcommittee or by the subcommittee chair. Upon approval of a submitted work, the subcommittee forwards the piece to the ASQ LED newsletter editor for final review, approval, and release. The newsletter editor will determine when accepted articles will be published.

Other — All articles containing photos should be submitted with the photo(s) as a separate jpeg attachment.

Calendar/Main Theme(s)

(Submittals relating to the main theme receive priority)

Issue	Content
February 1	Submit content by December 1 – preview of Lean and Six Sigma Conference
May 1	Submit content by March 1 – preview of ASQ's World Conference on Quality and Improvement
September 1	Submit content by July 1 – training, certification, and back-to-school
December 1	Submit content by October 1 – year-end reflection/looking ahead to next LSS conference

T³ Tools, Techniques, and Templates: Poka-yoke or Mistake Proofing

by Frank Murdock, Chair Lean Enterprise Division

Poka-yoke (pronounced POH-kah YOH-kay) is also known as error proofing or mistake proofing. It is one of the basic building blocks of lean and the subject of this issue's T³ column. T³ is a regular feature of the *Lean Enterprise Division Newsletter* dedicated to introducing some of the common tools, techniques, and templates used to help organizations on their lean journey.

“To err is human ...”

– Alexander Pope¹

What Is Mistake Proofing?

Mistake proofing is not assigning blame, pointing fingers—“idiot proofing” or “fool proofing.” Smart people make mistakes. Mistakes are caused by:

1. Wrong procedures or standards
2. Excessive variability
3. Defective or highly variable materials
4. Machine or tool wear
5. Human error

Mistake proofing is finding ways to prevent Causes 1-4. It also protects us and our customers from Cause 5. Human intelligence allows us to very quickly learn and adjust our behavior to a variety of situations. However, all of us make mistakes. The key to mistake proofing is anticipating when and where those mistakes can be made and how they can result in defective products or services getting to the customer (whether internal to our organization or external customers who pay us money). Human errors occur for a variety of reasons:

- Misunderstandings
- Forgetfulness
- Misidentification
- Inexperience
- Willful or intentional decisions
- Inadvertent (oops!)
- Slowness
- Lack of supervision
- Surprises or distractions

Mistake proofing uses software, sensors, or devices for inspection at the source where the mistake can occur. Source inspection prevents defects. *Judgment* inspection discovers defects after they occur. Dr. Deming used to say that 100 percent inspection (judgment inspection using humans) is only 80 percent effective. And there are a number of exercises that demonstrate this phenomenon over and over again (see the “F test”).² *Informative* inspection reduces the number of defects by providing feedback for improvement.

Mistake proofing is usually used in conjunction with informative inspection to both reduce the likelihood that mistakes will occur and,

¹ “An Essay on Criticism” by Alexander Pope, English poet and satirist (1688 – 1744).

² “Statistical Thinking Activities: Some Simple Exercises With Powerful Lessons,” Kim I. Melton, *Journal of Statistics Education*, Volume 12, Number 2 (2004), www.amstat.org/publications/jse/v12n2/melton.html.

cont. on p. 5

if they do occur, prevent defects from entering the system or process. So mistake proofing either shuts down or controls the process to prevent a defect from occurring or provides a warning when it detects a defect so that someone can take action to prevent the defect from progressing any further.

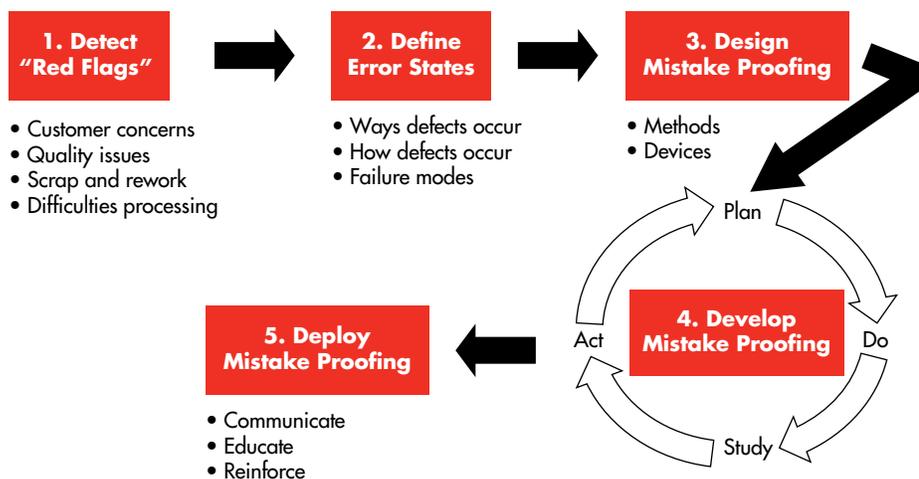
Why Is Mistake Proofing Important?

Mistakes or errors cause defects. Defects cause, among other things, customer dissatisfaction, which in commercial enterprises ultimately results in a loss in revenue or profits due to rework or scrap—in lean language muda or waste—or both. In other situations the “defects” can be lost time due to accidents or, as in healthcare, it can cause sickness and death (up to 98,000 people die every year in hospitals due to medical mistakes.³) All defects are preventable even though people make mistakes. And although mistake proofing as a tool is important, the attitude toward problem solving and preventing mistakes is just as important—part of the culture change discussed in a previous T³ article.⁴

The Mistake-proofing Process

Figure 1 shows a structured process for mistake proofing any process. The first step is to study the process of interest, taking careful note of any difficulties anyone has in carrying out any aspect of the process. Then using those “red flags,” error states are defined in terms of the ways defects occur and how they occur—connecting the “red flags” with the defects (Step 2). In Step 3 mistake-proofing methods and devices are designed to either prevent the mistakes from occurring or to signal as soon as possible that a mistake has occurred. These are tested and improved through the plan-do-study-act cycle⁵ (Step 4) and then deployed throughout the process (Step 5).

Figure 1: Mistake-proofing Process – 5 Ds



Examples of Mistake Proofing

- The overflow hole just below the rim of the sink to prevent water damage
- The tether on automotive gas caps—in some models the cap is built into the fuel door—to prevent it getting lost and possibly causing a fire as well as evaporative emissions
- File cabinets with drawers that can only be opened one at a time to prevent it tipping over and injuring someone

- Fuses or circuit breakers to prevent overloaded circuits and the resulting damage
- Data entry screens that check the values entered for range or format to prevent typographic errors
- Drop-down menus instead of fill-in-the-blank fields to ensure consistency
- Barcoding prescription medication to prevent mix-ups and injury

Conclusion

Mistake proofing:

- Anticipates human errors and prevents the resulting defects in the products or services provided.
- Occurs at the source of the mistakes by stopping the process so the defect cannot occur, controlling and isolating the defect so it cannot proceed any further in the system, or providing a signal that a defect has occurred so that someone can take action on the process.
- Requires knowledge of the process as well as ingenuity to design and develop software, sensors, devices, and methods using PDSA so that they work to prevent defects.
- Requires a culture of problem solvers and continuous improvement in order to sustain and expand the application of mistake-proofing techniques as changes and improvements are made.

Further Information

The Lean Handbook, Anthony Manos and Chad Vincent, editors, ASQ Quality Press, 2012.

Mistake-Proofing for Operators, Productivity Press, 1997.

Lean Hospitals, Mark Graban, 2012.

³ *To Err Is Human: Building a Safer Healthcare System*, National Institute of Medicine, November 1999.

⁴ “T³ Tools, Techniques, and Templates: Change Management,” ASQ *Lean Enterprise Division Newsletter*, February 2011, Volume 9, Issue 2, page 3.

⁵ *Out of the Crisis*, Dr. W. Edwards Deming, 1986.

Lean Enterprise Case Study

by Nick Vyas

Problem Statement: A large U.S.-based manufacturer of various electronic brands recently relocated its manufacturing plants to Mexico and China. The company has been in the industry for more than 100 years and manufactures more than 60 different models in three divisions: domestic, Canadian, and international. One of the company's competitive strategies has always been providing the highest warranty offered in the industry. Its widely sold products carry a five-year warranty on manufactured defects, seven years on the outer shell, and 10 years on electronics. This strategy creates high warranty costs, which impacts the revenue from equipment sales.

In recent years, the company has been dealing with the impact of its extensive warranty length, and the effects from product quality, durability, and reliability of its service reps. One of the most impacted domestic models has incurred a warranty cost of \$576,220, with 4,686 returns, and a 2.99 percent defect rate. With fluctuating field service labor rates, hours, and the variations of products offered over the multiple divisions, the root cause to maintain a competitive edge and reduce warranty costs needs to be determined.

The Improvement Process

Scope

Data for all returns from 2008 to the present determine that the domestic model XYZ 123 has the highest failure rate of 2.99 percent. Of the 4,686 returns, the highest failure categories are stereos at 59 percent, electronics at 20 percent, and power equipment at 18 percent.

Goal

The goals include: Determine the root cause for high failure rates within the identified categories of the XYZ 123, create a baseline, and establish a warranty reduction plan.

The team was tasked to establish a project constraint to ensure the boundaries are determined in advance. Constraints:

- The project needs to stay focused on the root causes behind the warranty costs of the SD3 model and not expand the project into any sub-issues or models that are out of scope.
- Each team member's action plan commitments must be taken seriously.
- Awareness: We are introducing the Six Sigma DMAIC approach and methodology to the company. This project assumes that all stakeholders will understand and accept the Six Sigma related work, and will provide support to achieve this project's full and successful completion.

The project team selected key stakeholders: Master Black Belt, project champion, and the vice president of operations. The team met to finalize the charter and begin the planning process. They decided that due to the large scope of the project, the project would focus on the models with the highest dollar exposure as well as involve all of the key stakeholders.

The team performed a full DMAIC exercise to pinpoint the root cause. During the data gathering in the measurement phase, along with the analysis of the data, it was determined that benchmarking was needed to establish industry standards in terms of warranty practices as well as the voice of the customer (VoC). As the data stratified, issues started to surface and opportunities were highlighted.

Below were the highlights of each of the DMAIC phases:

Areas for Review: Measurement

Various team members were assigned to collect the data and focus on various categories to help identify sources of issues and pain points.

Team member A – Warranty administration: Evaluate supplier warranty, supplier warranty to manufacturer, and industry standards

Team member B – Environment: Review common weather trends by season and state (domestic)

Team member C – VoC: Focus on customer expectations when purchasing a spa

Team member D – Symptoms of misdiagnosis

Team member E – Parts (supplier quality)

Areas out of scope:

Manufacturing, Transportation, Recycle, Scrap

Areas for Review: Analyze

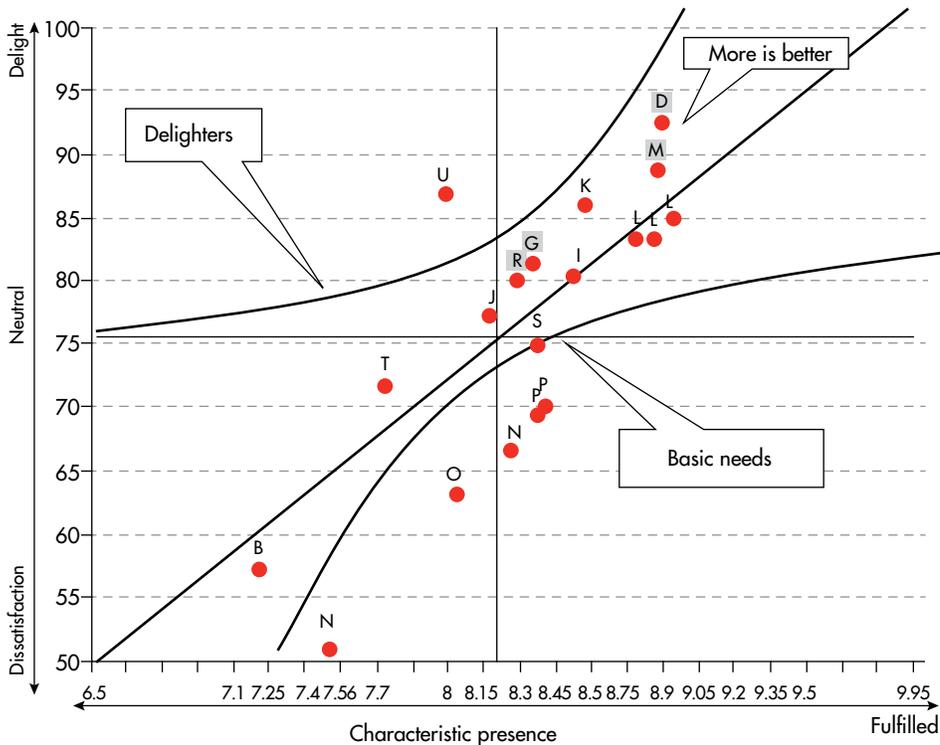
- **Symptoms of misdiagnosis:** Repeat service calls (same unit, short period of time, same parts or problem description by dealer)
- There was enough evidence of repeat service calls to further analyze the cause
- **Warranty administration:** Evaluate warranty to industry standards
 - Compared to other companies, this company's warranty policy and process and technology fall below average
 - This company's warranty costs as a percent of sales is significantly higher than other companies

cont. on p. 7

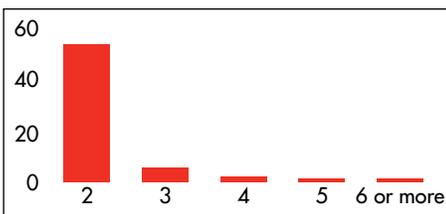
Case Study cont. from p. 6

- **Part quality analysis:** Part reliability is calculated as the number of claims received divided by the quantity manufactured in the same year
 - Primary failure modes as well as the failure rates in the first year are a direct indication that our suppliers are not meeting company quality requirements
 - Environment: Review common weather trends by season and state (domestic), review service calls by state trends
- **By seasons**
 - Service calls varied by season, with most calls being placed in fall at 794 calls (28 percent) and spring at 788 calls (28 percent). Summer and winter calls were 684 (24 percent) and 596 (21 percent), respectively.
- **By months**
 - Most of the calls are made in April and November. April service calls were 291 (10.2 percent), while November service calls were 288 (10.1 percent). All other months were under 9 percent, with the exception of May, which was 9.1 percent.
- **Voice of the customer:** Focus was on customer expectations on maintenance requirements and current concerns when purchasing product

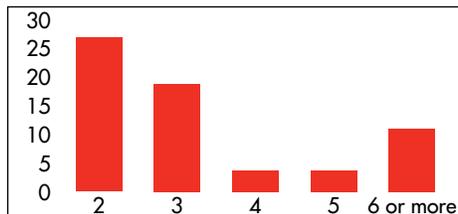
Results from Kano Model show that we are not meeting customers needs.



How many trips should it take to complete service



How many trips did it take to complete service



Bottom line: All of the causes were ranked and entered into a Pareto analysis to determine the impact on overall cost of warranty.

Areas for Review: Improvement

After detailed analysis, the efforts for improvements were categorized in the following key areas as part of phase 1:

- Misdiagnosis: parts, service, and dealer variability
- Supplier quality: warranty extension, FMEA process, accelerated life testing
- Warranty administration: proactively monitoring warranty claim process and identifying trends and abuses in real time
- Environmental: customized training and problem-solving solution based on geographical locations
- Meeting customer expectation: following thorough VoC analysis and delivering balanced cost and service expectations
- As a result of the mapping process it was also determined that dealers were working on their own set of practices and cost structure. This cost the organization more than \$1.0 million in repair. Overall, the project team concluded that by deploying the new warranty claim process, holding the supplier for their parts for internal reliability matrices, and making dealers network to comply with a set of standard practices, the company's annual savings would be \$2.4 million.

Areas for Review: Controls

The team implemented the following controls during the project:

- A detailed KPI of weekly warranty claims by dealers by cause
- A detailed KPI of weekly warranty claims by dealers by cause by technician. Standard work was developed and implemented
- The repair schedule can be interactive, updated midday, and used by a centralized dispatch team to ensure proper diagnosis. It also made it possible to ensure right parts and courses of actions were deployed.
- Several internal operations were either converted to external activities or were converted from sequential activities to parallel activities.
- Several days were eliminated from the cycle time.

cont. on p. 8

Lessons Learned

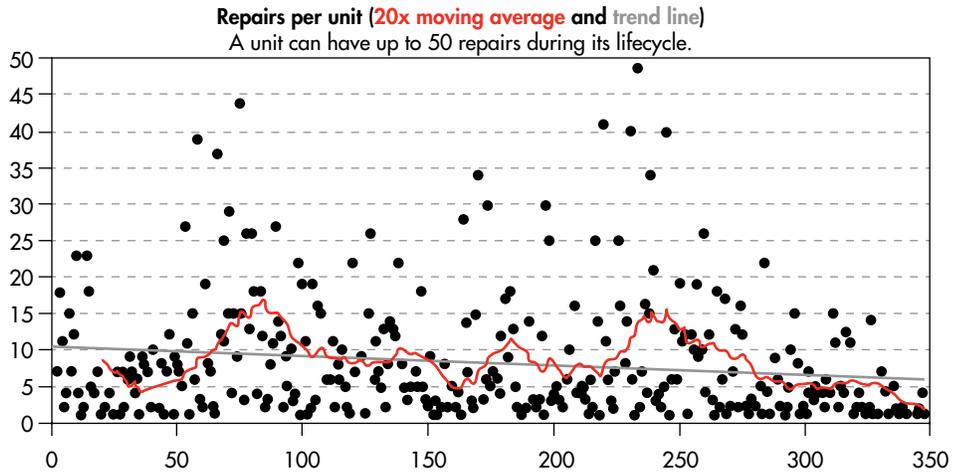
This project was very successful—change was driven from top-down as well as bottom-up. Stakeholder analysis was conducted at the beginning of the project; however, it would have been better to engage all of the stakeholders at the start of the project rather than after the analysis. Since passing its one-year maturity, the company has realized 110 percent to target savings forecasted.

About the Author

Nick Vyas has more than 20 years of experience successfully managing organizations as a visionary leader and globally recognized expert in global supply chain and Lean Six Sigma, and has helped Fortune 100 companies achieve outstanding results in the areas of distribution, operations, and transportation across various sectors. Vyas serves as director of the USC Marshall Center for Global Supply Chain. He is global community chair of ASQ's Lean Enterprise Division.



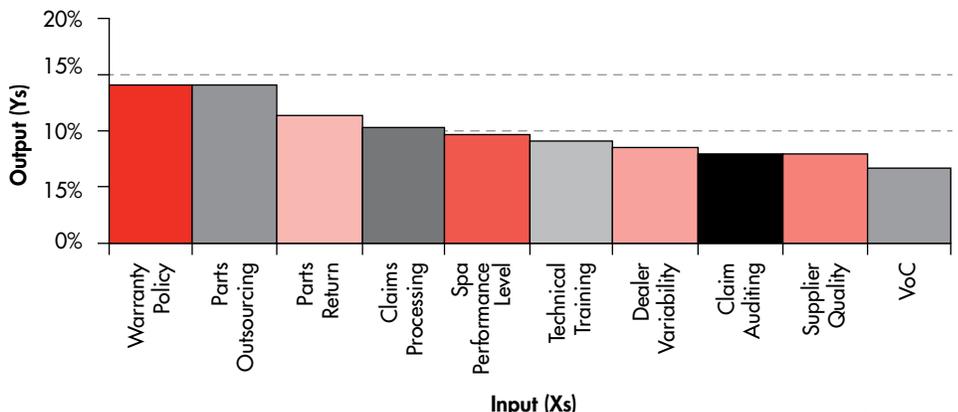
Scatter diagram – repairs per unit



Prioritization matrix

		XY Diagram Table										
<div style="border: 1px solid gray; padding: 5px; display: inline-block; margin-bottom: 5px;">Demo</div> <div style="border: 1px solid gray; padding: 5px; display: inline-block;">Delete</div>		Process:	Warranty cost reduction								Ranking Scale:	
		Date:	8/30/2011								1= none, 3 = marginal, 9= highest	
		Output variables (Ys)										
		Description	1	2	3	4	5	6	7	8	9	10
		Weight	10	6	8	7	9					
Input variables (Xs)												Ranking
1	Parts ordering		9	9	9	9	9					360
2	Parts return		9	9	9	9	1					288
3	Dealer variability		3	3	3	9	9					216
4	Supplier quality		3	9	9	3	3					204
5	Spa performance level		3	9	9	1	9					244
6	Claims processing		9	9	3	9	3					258
7	Claim auditing		9	3	3	9	1					204
8	VoC		1	1	1	9	9					168
9	Warranty policy		9	9	9	9	9					360
10	Technical training		3	9	9	9	1					228
2,530												

Input matrix results



Learning From the Experience of ... David Mann

by David Behling, LED Programs Chair



David Mann

This column brings you interviews with some of the top lean, improvement, and leadership individuals at the forefront of our field.

I recently had the pleasure of speaking with David Mann, an expert in lean management systems with more than 20 years' experience developing and leading lean business process conversions across a wide variety of industries and business functions.

How did you get started in this field?

I started working in manufacturing with a company that paid piece rate for the last 75 years. I was supporting a change effort by implementing a change management approach for floor leaders. This project involved following up on the floor with good lean (Toyota-trained) teachers. We found that when the project teams moved on, the supervisors returned to doing the "same as always," bringing inventory in, unbalancing a line, etc. I realized that the lean production design was falling apart. We had prepared the supervisors to lead the change from a conventional production to lean, and did nothing to prepare them for how to lead after the change and what would be different from what they had done before. It was evident to me when looking at it as a social scientist, which I am, that we didn't prepare the supervisors for what they needed to do for success.

What have you recently been reminded of that is important to remember when practicing lean improvement?

It is important to remember to be aware of the question that people will have when approaching them to do something different. Some will be willing to ask the question, most will not, yet everyone will have it and it will be on their minds. The question is: What is in it for me? (Or, how will this help me? How will this give me a better day at work?) If we cannot address this question, then the change is just another "flavor of the month." Manufacturing people are pragmatic and will usually use a more effective method when showed to them. The leadership level will not always understand "What is in it for me?" We must demonstrate that we want to understand what another person's job is and/or the issues are. We are not asking a machine to change, we're asking a person to do something differently. If you are unable to address this question, you will have "problems of resistance" at the level of leadership.

Why do you think that lean management has "missed" or not really talked about much before you brought it up in your book?

I think that there are two possible reasons.

1. When I was initially learning lean from people who had been tutored by Toyota, management's approach was so much a part of the environment and "in the atmosphere." The approach wasn't distinctive enough, so that people could not distinguish the lean management from the rest of what they had learned. One had an inkling that a management system existed; most just focused on the tools, since everything else was always taken care of and supportive of the tools.
2. Most people who go into technical fields, particularly engineers, are drawn more to things than people and are taught/trained to focus on things. They do not have much experience maintaining what is essentially a large-scale organizational intervention. Problems of persuasion and acceptance are not engineering problems. Many times, innovation in a field comes from outside the field and from looking with a different perspective; I was from outside the field!

If you were going to explain to someone (or an executive) what lean is, what would you say?

Lean is all about finding problems. It is not about eliminating waste; lean is about finding and identifying waste. Lean is, most fundamentally, an improvement system. It focuses intently on the actual process as it cycles through doing whatever your organization does. Great emphasis is placed on the process and setting expectations on that process. Information on how to improve will be provided when the expectations are not met. The focus on process also has a lot to do with maintaining a stable environment and limiting variation.

What do you think is the biggest misunderstood concept concerning lean within the lean community?

Respect for people. We are many times not interested in sharing our discretion, our authority to define what problem is worth working on. This is a widespread problem and leads us to do things to people instead of with them. Continuous improvement is the most difficult thing to do in lean because it is not something that an engineer does; it is something that the people who do the work do. Continuous improvement comes from the people doing the work, and we're not very good at it.

I would like to, once again, thank David Mann for providing the opportunity and time to conduct this interview.

About the Author

David Behling is the programs chair of the Lean Enterprise Division. He has worked extensively in the lean, improvement, and quality fields helping companies by creating a lean culture and building lean leadership. He is currently the director of process improvement at Goodwill Industries of Southeastern Wisconsin in Milwaukee, WI.

Learning From the Experience of ... Matthew E. May

by David Behling, LED Programs Chair

This column brings you interviews with some of the top lean, improvement, and leadership individuals at the forefront of our field.

I recently had the pleasure of speaking with Matthew E. May, an author, speaker, and founder of EDIT Innovation, which works with creative teams all over the world, helping them track down elegant solutions to complex problems.

How did you get started in this field?

I got started by a “happy accident” when Toyota Motor Sales in the U.S. asked me to facilitate a three-day off-site training, which was the beginning of the Toyota University. This opportunity led to eight years of working with Toyota’s U.S. headquarters, during which time I became a master *kaizen* (continuous improvement and innovation) instructor and coach. I was tasked with taking the lean and problem-solving principles to all areas of the company.

What is the biggest learning point that leadership and organizations should take from your work?

It can be stated in three words: “less is best.” Less is not a discipline taught in the West. Contemplating “less” should generate a lot of intelligent thinking, a lot of reflection, and thinking about “How do I get better?” “Best” is worthy of pursuit and yet totally unattainable.

What is the biggest change in leadership that you’ve seen in the last several years?

Starting to see “lessness” in how organizations structure themselves and their operations. It seems that the most successful organizations have developed three paths:

1. A **leaner** path is simpler and provides more elegant functionality and utility. This has sometimes been caused by force. It can be seen in products and services, as they are being driven to be simpler. An example is mobile applications, which are dirt simple, very focused, and void of bells and whistles.
2. A **looser** management control/command path is resulting in flatter organizations in which some are turning toward results-only work environments. Organizations are looking for just the right amount of freedom to be innovative without being shackled.
3. A **quiet** path is promoting reflection and obtaining a quiet mind. Organizations are understanding that purposeful breaks are necessary for creativeness and innovation. It has been reported that Google University has an approximately seven-month waiting list for its meditation course.

What is the biggest change in leadership coming in the future?

The challenge for companies is developing a common method and language to determine a clear “conception to reality” road map. They need to use innovation to generate a clear strategy to create an effective launch. Companies are starting to do this better and are being helped framing their problems by using *Lean Start-Up*, a book authored by Eric Reis. Part of Toyota’s success is due to the common creative technique that everyone adheres to and allows the company to move much quicker through the entire process.

What has surprised you most about your message?

My message has been truly embraced by designers, schools, and the design community. It has resonated with the minimalist and Zen theories used in design.

What are you currently working on?

As one may say, I am in the stage of “kissing a lot of frogs.” I am doing a lot of writing for my HBR, FAST Company, and 99u, and working with new clients. Something that I have recently been thinking about is possibly writing a book about “Skunkworks.” Larger organizations have a very difficult time changing their cultures and are thinking more and more about how Lockheed approached this with Skunkworks. Lockheed created a secret innovation lab, which had small teams, very strategic goals, and compressed timeframes.

Three philosophies Matt abides by:

- “Stop doing.” Everyone’s got a to-do list. How many have a to-don’t list? (Borrowed from Jim Collins.)
- “To attain knowledge, add things every day. To attain wisdom, subtract things every day,” by Lao Tzu.
- “The simple things you see are all complicated,” by The Who. This means you have to change the way you think about the world.

I would like to, once again, thank Matthew May for providing the opportunity and time to conduct this interview.

About the Author

David Behling is the programs chair of the Lean Enterprise Division. He has worked extensively in the lean, improvement, and quality fields helping companies by creating a lean culture and building lean leadership. He is currently the director of process improvement at Goodwill Industries of Southeastern Wisconsin in Milwaukee, WI.

A Lean Manufacturing Journey

Tait Communications' lean journey started in October 2006, with a cold call from a Frenchman whose advice the company didn't take

by Dean Mischewski

First published in the August 2012 issue of *QNewsZ*

Background

If this were a standard “business turnaround” story à la Eliyahu Goldratt’s *The Goal* or any of a host of similar novels, our lean efforts would have been precipitated by some sort of crisis: an impending business meltdown, with job losses, factory closure, and the threat of a swift transition to manufacturing in China. The reality was not so dramatic, but there was some peril nonetheless.

Tait had experienced steady, moderate profit but with less-than-expected growth. High exchange rates were starting to bite, especially given that the vast majority of our production was exported. We saw a number of other companies in the electronics industry shift their manufacturing operations to Asia, and there had been occasional questions about the wisdom of our continuing to manufacture in New Zealand. While our high-mix, low-volume production environment was not something that could be easily off-shored even if we had wanted to, there was certainly pressure to show that a New Zealand manufacturing operation could continue to be competitive.

It was in this context that our manufacturing manager received a phone call out of the blue from a French lean manufacturing consultant. He represented a large European consulting organization, and must have been touring Australasia looking for business in our part of the world. He offered to come in and carry out a free assessment. Figuring that we had nothing to lose, we agreed. This led to a one-hour factory tour, followed up by a verbal report, the gist of which was that our operation was not very lean, but that with help we would be able to double productivity.

While this assessment may have been accurate, the manner in which it was delivered came across as somewhat insulting. And when we considered that the proposal would also entail considerable expense in bringing a lean implementation team from Europe, and that any subsequent support would similarly have to come from the other side of the world, we declined to pursue the opportunity.

But we thought it wouldn't hurt to get a second opinion, so we found a local lean improvement company, LMAC, which had been established in Canterbury the previous year, and arranged for a similar assessment exercise. LMAC's consultant (actually, the founder and managing director) approached things somewhat differently to the previous encounter.

Figure 1: Why Change Efforts Fail

The image shows a participant workbook page titled "Why Change Efforts Fail". It contains a checklist of 15 items, each with a checkbox. The items are:

1. People leading the change think that announcing the change is the same as implementing it.
2. People's concerns with change are not surfaced or addressed.
3. Those being asked to change are not involved in planning the change.
4. There is no compelling reason to change. The business case is not communicated.
5. A compelling vision that excites people about the future has not been developed and communicated.
6. The change leadership team does not include early adopters, resistors, or informal leaders.
7. The change is not piloted so the organization does not learn what is needed to support the change.
8. Organizational systems and other initiatives are not aligned with the change.
9. Leaders lose focus or fail to prioritize, causing "death by 1,000 initiatives."
10. People are not enabled and/or encouraged to build on new skills.
11. Those leading the change are not credible—they undercommunicate, give mixed messages, and do not model the behaviors the change requires.
12. Progress is not measured and/or we are recognizing the changes that people have worked hard to make.
13. People are not held accountable for implementing the change.
14. People leading the change fail to respect the power of the culture to kill the change.
15. Possibilities and options are not explored before a specific change is chosen.

Below the checklist is a section titled "What causes resistance to change to increase?" with a blank space for writing.

[Ref: P. Zigarmi, J. Hoekstra, and K. Blanchard, "Leading People Through Change: Participant Workbook," The Ken Blanchard Companies, 2008, pp. 6–7.]

For a start, he was complimentary: Tait, he said, had an impressive operation, but he felt that a free three-day scoping exercise might reveal some room for improvement. The outcome of this was the presentation of a paper with detailed findings on what could be achieved, including evidence of the factory's current efficiency: roughly 40 percent (much lower than we thought it was), with indications as to how we could improve to at least double that.

On the face of it, the scope of the potential improvement sounded a lot like what we got from the French guy, but the LMAC approach was much more endearing. It didn't hurt that, as a local company, they had an accessible reference site we could check out; that there would be no unnecessary expense with travel and accommodation; and that we'd be able to tune the level of their input to match our available improvement resource as things changed over time. I should also mention that LMAC had impeccable international ex-Toyota credentials.

When we presented the opportunity to our managing director requesting a mandate to invest, it was granted—but with the proviso that any expenditure had to be paid for in productivity gains within the next six months. Perhaps that was our MD's way of generating the sense of crisis that always seems to loom in the background of the business turnaround novels.

As it turned out, we were able to pay back the investment with plenty of time to spare.

Getting Commitment

We began our implementation of lean with a single pilot production line. We chose to start with our “TMA” line, which made mobile radios of the sort our readers are hopefully not intimately familiar with, as they are commonly found in places most people don't want to be, like police cars and ambulances.

Two compelling reasons for starting here were that this was one of our highest-volume products, so any incremental gains would quickly multiply in their effects, and perhaps more importantly, the product was in a growth phase, so we would be able to improve our efficiency without costing anyone their job.

The whole effort was very much driven from and supported by our leadership. After getting the OK from our managing director, our manufacturing manager made sure his leadership team in the factory was

cont. on p. 12

behind the initiative, and then they made sure that their team leaders knew what was going on and also supported it. This was especially important for the leader and members of the TMA team, who would be subject to the most initial change.

They were briefed on everything very early, so they understood why we were pursuing this initiative and had some idea of what was planned. It was interesting to discover later that the actions we took to promote what became some very significant changes lined up very well with a textbook “change management” process. (See Figure 1.)

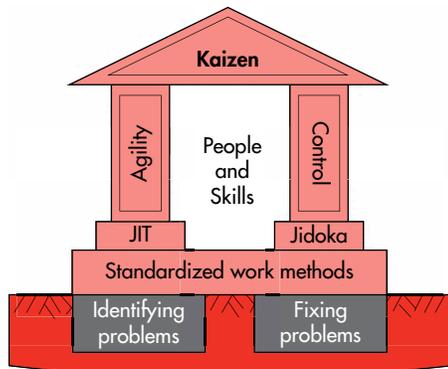
In our case, we managed to avoid ticking any box on the “Why Change Efforts Fail” checklist.

One specific thing we did was to ensure that the pilot team got “lots of love.” They participated in daily progress meetings and were continually asked for suggestions and feedback. Any of their suggestions were given top priority for review and implementation. In this way the team members were very much a part of the change—it wasn’t something just done to them by a bunch of outsiders.

Going Lean

One way to think about lean is as the removal of waste, but I should emphasize that the Toyota Production System (which we deliberately emulated to the extent that we could) goes much, much deeper than that. One representation of this system is the “House of Lean” or “Lean Temple.” The version promoted by LMAC looks like this:

Figure 2: The “Lean Temple”



Source: LMAC Consulting, <http://lmac.co.nz/LEAN.php>

Kaizen is the roof, the goal: continuous improvement in terms of lead time, quality, safety, customer delight, cost, morale, and

overall value (to all involved, not just the customer, and not just us, but also to society in general). The foundation is standardized work. The pillars are agility or flexibility through just-in-time processes, and control through jidoka (“automation with a human touch”): simple visual control of the process to detect problems early, short-interval management to work around problems quickly, root cause analysis to fix problems permanently, and mistake-proof processes to prevent problems in the first place.

Standardized Work

We started with standardized work, which involved detailed video analysis of every aspect of the assembly process. This helped us see clearly the difference between value-adding (VA) and nonvalue-adding (NVA) work. Then we could try to streamline how we did the VA work; and for the NVA work (i.e., the waste) we could differentiate between necessary waste (like the multiple rotations of a screw before the last quarter turn that actually tightens something into place) and unnecessary waste (like the operator moving from his workstation to fetch more screws when his bin becomes empty). We would then work to remove the latter.

In lean terminology, waste is often described as *muda*, and can be broken up into seven categories: transportation, inventory, motion, waiting, overprocessing, overproduction, and defects. This is what we looked for and eliminated. One thing we didn’t realize until later is that muda is itself only one of three broader types of problem, the others being *mura* (unevenness) and *muri* (overburden). Although we’ve made a start, we’re still learning how to deal with these latter two.

Regarding muda though, once we knew what to look for, it was a matter of discipline and sustained attention to detail. We found that a lot of the work of doing lean can be really boring—following operators with video cameras, then spending hours analyzing the resulting footage. But the payoff was immense: We uncovered plenty of waste in all of those categories, and it was great to be able to steadily eliminate it—in both small and big ways.

Figure 3: Video analysis allowed us to analyze every element of a job.

TMAAOL: 06
x1

Video Timing Record									
No	Work Element	Counter Start	Counter Stop	PHOTO Time	Allocated Time	CT Fluctuation Issues	Time Impact	CT Issues	Time Impact
1	Measure 1 Set of cable	00:09	00:18	11	11				
2	Cut cable	00:18	00:24	6	3				3
3	Strip one end of cable	00:24	00:49	25	11	Stripper not set correctly	14	Strip to use final settings. Stripper calibration for next job.	
4	Strip other end of cable	00:49	1:00	11	11				
5	Feed back foil over cable	1:00	1:19	19	17		2		
6	— " — (other end)	1:19	1:36	17	17				
7	Set Stripper machine	1:36	1:49	13	13				
8	Strip 10 wires of 1st end of cable	1:49	2:24	35	35				
9	— " — 2nd end (off)	2:24	3:00	36	36				
10	Pile cable for 219-03082-00	3:00	3:06	6	2			Improve parts location to point of pick.	4
11	Cut off Drain Wire from both	3:06	3:13	7	7				
12	Strip wire insulation on 1 end	3:24	3:42	18	14	Needed to set stripper above/below bot	4	Use safety pin to change instead	15
13	Set up file on vice ready for tin wires	3:42	3:57	15	0				
14	Tin x 4 wires (one end)	3:57	4:10	13	4				9
15	Remove cable from vice	4:10	4:14	4	0				4
16	Fit x 4 sleeves to wires	4:14	4:41	27	17		10		
17	Fit D Range to vice	4:41	4:49	8	8				
18	Check WIS	4:49	4:55	6	0	Will be trained to use	6		
19	Solder D Range pins	4:55	5:13	8	8				
20	Solder 4 wires to D Range & Slide	5:13	6:05	52	42	Unnecessary fluctuation	4	Mount D Range around in vice - not necessary	6

A Need to allocate time for 219-03082-00
 B 219-03081-00 (Big cable)
 * Don't fit Hantschink as per 'Daji' WIS.

Note: CT stands for cycle time.

As we identified better ways to do things, we documented them and trained all operators so that “best practice” became “only practice.” We broke down our assembly tasks into what we called “job elements,” very low-level descriptions of each step, each of which might take

only a few seconds (e.g., “solder four legs on power connector” or “fit washer and screw to antenna connector”). We didn’t go all the way to classic industrial engineering methods—time measurement (reach, get, put, etc.) but we got to a level of detail that made VA vs. NVA work very apparent.

Once we started using standardized work to lock down every aspect of the assembly process, that paved the way for improvements in agility.

Agility

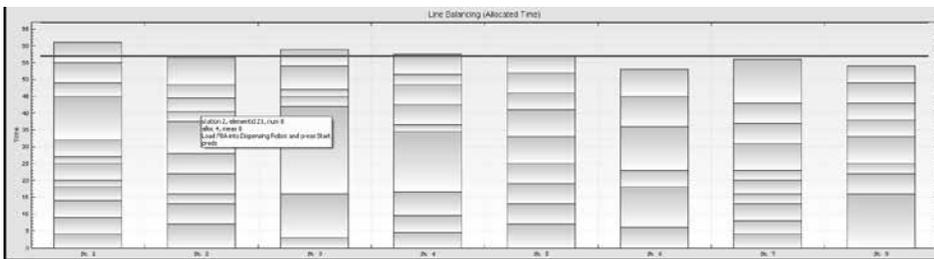
Knowing exactly what the work content is for each product or family of products assembled on a line got us thinking in the right frame of mind: Every day we weren’t working for roughly eight hours, we were working for 27,120 seconds. In a lean production environment, every second counts.

The number that should be built each day was derived from customer demand. When we started the pilot project on the TMA line, that number was 180 per day, which we had been able to achieve with our conventional setup if we used overtime. By the time the pilot project was over and we were rolling out lean to the rest of the factory, customer demand had peaked at between 400 and 440 units per day. At that point we could handle the increased demand using the same number of people, with the production area taking up only half the space. A productivity improvement of greater than 100 percent was ample motivation to apply our lean learnings everywhere else we could!

At that peak demand we had to produce one unit roughly every 61 seconds—this became what is known as the “takt time” for the line, the frequency that allowed us to match production rate to customer demand. Knowing the total amount of work, in seconds, to produce each unit allowed us to calculate the number of workstations we needed for any given takt time.

We then had to balance the line to make achievement of that takt time possible. One way to visualize it is to take all the job elements that make up the assembly process, and arrange them on a stacked bar chart, with one bar for each workstation. The height of each bar is the sum of the time of each job element making it up. The individual elements can then be moved from bar to bar until a feasible assembly sequence is achieved that results in no bar being higher than the takt time. The Japanese term for this is a *yamazumi* chart.

Figure 4: Yamazumi chart for the TMA product. Each small box is a job element, and has a time, description, and other data associated with it.



This is relatively straightforward in principle (once you’ve done the work to get the job element data, of course). But real flexibility comes when you can quickly change the takt time of a line. To make this easier, we developed our own computer application that allowed us to drag and drop the work elements between bars on our yamazumi chart. That was pretty cool, but what was even cooler was that behind the chart was a database that connected each element with its tools, components, and detailed instructions.

This meant that after shifting elements around on the chart, the list of tools and components required at each workstation was automatically updated. We could also output a complete set of work instructions for the new line arrangement, and a new set of location labels to go on the component bins, which would ensure that when refilled by our stores team they would automatically get delivered to the (new) correct location on the line. This impressed even our lean consultants, who said that in one area at least we were ahead of Toyota.

cont. on p. 14

WANTED!

Authors: Share your experience and knowledge with your peers in the ASQ Lean Enterprise Division while obtaining valuable publishing credits to add to your professional credentials. Lean Six Sigma tips, articles, book reviews, and case studies are all needed. You can submit your piece on a subject of general interest or target your submittal to specific newsletter themes. Authors are entered into a drawing for a free conference registration (Lean and Six Sigma Conference or the World Conference on Quality and Improvement).

LED Publications Subcommittee

Members: Build your professional credentials while helping to support the LED as a member of its leadership. Review article submittals, recruit authors, and have your own lean-related articles published. Make new professional contacts and friends as you help shape our newsletter moving forward.

Are You Getting the Most Out of Your LED Membership?

Take a look below and make sure that you are taking advantage of all the things that the division offers to its members.

- Free webinars
- Free newsletter
- Archive library access
- Networking
- Mentor or be mentored
- Participate in our LinkedIn group
- Opportunities to expand professional credentials
 - Author articles
 - Present at conferences
 - Become certified
 - Diverse online and in-person training offerings
 - Volunteering – become a member leader
- Lean and Six Sigma Conference
 - More than 60 sessions presented by industry leaders
 - Network with more than 500 lean practitioners
 - Certification exams
 - Free giveaways

Lean Enterprise Division Webinars

Watch for email messages from the Lean Enterprise Division announcing that registration is open for the webinars listed below.

August	Drew Locher – Lean Office and Service Simplified
September	Jeff Fuchs – Lean Personified
October	Bob Petruska – Gemba Walks for Positive Change
November	Justin Roff-Marsh – Reengineering Sales

Recently we posted recordings of the May, June, and July Lean Enterprise Division webinars:

Low-cost and Easy Lean Training

Exercises, by Tony Manos
asq.org/le/112693/web.html?sh=112693

You and your colleagues are invited to this session, where you will see several low-cost and easy lean training exercises.

Restarting Your Lean Transformation,

by James Petersen
asq.org/le/112501/web.html?sh=112501

Join us for *Restarting Your Lean Transformation*. (You may also learn how to get your New Year's resolutions going again).

Training Within Industry—How to Make

Standards Stick, by Chris Lindstrom
asq.org/le/112766/web.html?sh=112766

Learn how to improve standard work by participating in the webinar and be introduced to TWI's job instruction and job relations methods.

Not getting ASQ's Lean Enterprise Division email messages?

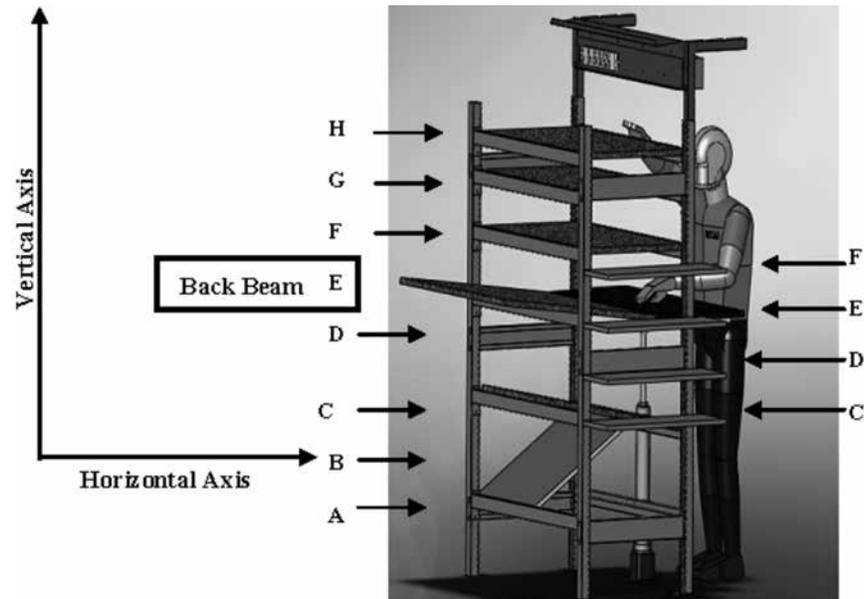
Be sure that your ASQ email preferences enable opt-in from your ASQ divisions. Check under the My Account tab at www.asq.org or call ASQ Customer Care at 800-248-1946.

Lean Manufacturing cont. from p. 13

One of the biggest changes, from an operator's perspective, was what we did to our workstations. We went from traditional seated assembly benches to high-capacity flexible stations, where the operators stand to work, although they also have a "perch" stool that they can use to take the weight off their feet. This less sedentary approach, with height-adjustable workspace, direct station-mounted lighting, and ergonomic location of tools and components, meant that our lean work environment was much healthier than what we had before. It was also cleaner and tidier.

Figure 5: Flexible Workstation

Each letter represents a shelf level, used for specifying component deliver-to locations.



Another aspect of agility was the single minute exchange of die (SMED) work we did on our highly automated surface mount assembly lines. SMED focuses on reducing setup times, thereby increasing flexibility and lessening the temptation to run automated processes in big "economic" batches. On one line we took average setup time down from nearly 90 minutes to about 20 minutes, mostly by putting processes in place to allow much of the setup work to be done while the line was still running.

Control

Once our work was standardized, controlling it became so much easier. We were able to tell, at any given moment through the day, (a) how many seconds-worth of work had been done, based on the number of products built by that time, and (b) how many seconds had elapsed since the start of the working day. We called the ratio between these two numbers our "OPR," or operational productivity ratio. By displaying this number in real time, and by making the display go from green through orange to red if the number dropped below certain thresholds, it became immediately apparent when something was going wrong, and we could step in with a countermeasure straight away.

Alongside productivity, the other key metric we displayed was quality, measured in terms of first-pass yield at our automatic test stage.

We also severely limited the amount of work-in-progress (or WIP) inventory allowed on the production line. In lean thinking, inventory is not only wasteful, it hides problems. The practical outcome was that when anything went wrong, there was no big buffer of WIP that people could keep working on. If there was a parts shortage or a test jig breakdown at one workstation, the downstream workstation was very quickly starved of product to work on, and the upstream workstations came to a halt because they quickly filled up their small allocated storage space between stations. This might seem like a bad thing, but it meant that problems were so disruptive we had to fix them quickly and ensure they couldn't come back.

cont. on p. 15

Outcomes

In simple terms, our lean manufacturing initiative has given us a productivity improvement of roughly 100 percent in each production area we've deployed it, and we've spent most of the last few years rolling it out through the whole factory, and then consolidating the gains. We've had a few consecutive years of profitability where that level of profit just wouldn't have been there if it weren't for the outcomes of our lean project.

Right now we are at a level of lean maturity where we have realized collectively that, ironically, we are not as mature as we thought; we still have lots of room to get better. Complacency is anathema to a lean organization, and we have a whole list of additional improvements that we are working through to keep delivering those kaizen goals at the top of the lean temple.

Meanwhile the rest of the organization is embracing lean too. We have a major strategic improvement program running right now that is bringing lean thinking to the product development process. Learning-first product development, A3 Problem Solving, test-then-design, set-based concurrent engineering, Agile development tools, high cadence, cross-functional engagement, empowered and responsible teams—all this and more is making Tait a really dynamic place to be right now. We are well into our second year of this and have learned a lot, but to summarize the story of our journey in this fresh direction would take at least a whole new article!

Many of the key people from our original lean manufacturing project are closely involved with this. It's really exciting for us, because our "development factory" is bigger than our "product factory." If we get the same gains here that we have seen in manufacturing, the increased value we can deliver to our customers is going to make them, and us, very happy.

For further information contact dean.mischewski@taitradio.com.

Tait Communications

Tait Communications is a global leader in designing, delivering, and managing critical communication solutions that help utilities and public safety organizations to keep the lights on and communities safe.

Radio communications is at the heart of our business. We provide world-class turnkey solutions for challenging environments from the Gobi Desert to South American jungles, from highly populated cities to vast rural communities.

Every day, in more than 150 countries and supported by an extensive network of global facilities, thousands of customers benefit from the Tait way of working: commitment to listen, courage to act, and integrity to deliver what's promised.

Meet Us Now on Twitter @asqled

The ASQ Lean Enterprise Division exists as a strong advocate of eliminating nonvalue-added activities that add waste in the form of unnecessary time, effort, or cost, and creating products and services that will add direct value to a customer. Value from the perspective of the customer is the voice of the customer (VoC).

In my role as the chair of the Lean Enterprise Division VoC committee, I am continually trying to understand clearly and exactly what product or service our members desire, when it needs to be delivered, and at what price. I am always looking at technologies and creative ways that will help us understand our members better, and this is why we started using Twitter.

As we all know, Twitter is an online social networking and microblogging service that enables its users to send and read text-based posts of up to 140 characters, informally known as "tweets." Twitter is really just another form of online communication in a new shape, but is also a platform for listening to the communication of others in new ways. As a Twitter user, one can post updates, follow, and view updates from other users and send a public reply or private direct message to connect with another Twitterer. Tweets have evolved to more than everyday experiences, and take the shape of shared links to interesting content on the Web, conversations around hot topics (using hashtags), photos, videos, as well as real-time accounts from people who are in the midst of a newsworthy event, conference, crisis, or natural disaster. Users who enjoy reading what you share on Twitter become your followers and, likewise, you follow those who share content that is of interest to you.

I have outlined some of the goals that the ASQ Lean Enterprise Division is aiming to achieve using Twitter:

1. Connect with our members all over the world and those who are interested in what we do.
2. Share lean content from ASQ and the Lean Enterprise Division, which may include, but is not limited to, articles, newsletters, best practices, case studies, podcasts, videos, tools and techniques, education, conferences, certifications, and calls for papers.
3. Retweet and share content from quality professionals and lean practitioners around the world.
4. Share ASQ and the Lean Enterprise Division's special offers, exclusive promotions related to lean education, membership, and lean conferences.
5. Announce and recognize winners of lean contests at conferences, best lean writers, speakers at lean conferences, and certified lean professionals.
6. Announcements and reminders for conferences, training, and call for white paper submissions.
7. Announcements for case studies and articles.
8. Announcements for lean jobs and career advancement opportunities.
9. Get direct feedback from our members and those who are interested in what we do.
10. Tweet-ups and Twitter discussions.

Twitter is a small attempt by the Lean Enterprise Division to make ourselves available for our members, help whenever possible, and to show that the Lean Enterprise Division is built and run by real people who believe in quality and lean, and who care about our members. So come follow us on Twitter and get immediate access to rich content from quality professionals and lean practitioners around the world. We can be followed on Twitter at @asqled. We look forward to meeting you.

Madhavi Chodankar

Voice of the Customer Committee Chair

The Virtues (and Vices) of Lean Certification

by Jeff Fuchs

In recent years, the principles of the Toyota Production System have been applied to an ever-wider range of industries and process types including healthcare, IT, government, accounting, sales, and more. Lean thinking is becoming mainstream. Part of lean's evolution has included a system of Lean Certification. I have been fortunate enough to be part of the Lean Certification's early design team, helped hundreds to achieve their certifications, and chair the certification's oversight committee. Over six years, I have developed a deep appreciation for certification, but have also seen some dangerous pitfalls. As you explore Lean Certification, here are some virtues and vices to consider.

The Virtues of Lean Certification

Certification confirms core concepts.

Lean Certification gives structure to the Lean Certification Body of Knowledge (BoK) and standardizes key concepts. This is important because all non-Toyota practitioners have learned lean secondhand and, for many of us, there are gaps in our knowledge and experience. These gaps are invisible until we can see our education from a broader perspective. Personally, I learned lean from a large aerospace company, and I thought my training was pretty good. It was only much later that I discovered the lean I learned was their interpretation, filtered many times over. Imagine learning English solely from your parents. Only later, when you moved to college, did you discover that you speak in slang, whole chunks of vocabulary were skipped, and a couple key concepts central to communicating with others were entirely missing. Lean Certification helps to establish a common core for lean concepts and methods. You can pick and choose the right tool or idea for the right problem, but now you have the full palette to choose from.

Certification builds skills.

Lean Certification is designed to provide individuals with a mechanism for feedback and a standard yardstick for personal development. With Lean Certification you can measure your growth over time, and do so against qualifying standards for different capability levels. Certification helps build confidence in your knowledge and skills. For example, you might study CPR, but until you test yourself with a Red Cross certification, you might be unsure of how knowledgeable and skilled you actually are. Certification is not necessary to save someone's life with CPR, but it does help give you and others confidence that you are up to the task.

Moreover, the design of the Lean Certification challenges practitioners to open new doors in their personal lean journeys. Lean Certification candidates must answer several questions, including, "What are your lessons learned through completing the Lean Certification portfolio process?" As a reviewer, I love reading these answers; the variety and richness of the responses helps to affirm that the Lean Certification system is succeeding in challenging lean thinkers to reflect and grow.

Most importantly, Lean Certification helps accelerate the transition from a tools-based understanding of lean implementation toward a principle-centered understanding of lean leadership and lifelong learning. Certification helps move practitioners from, "Lean is about good 5S," to "Lean is about creating a culture where everybody systematically improves processes every day." By elevating this understanding, Lean Certification helps strengthen the community of lean practitioners.

Certification is about results.

Each level of Lean Certification includes an exam and a project portfolio. The certification, therefore, is not just about the accumulation of knowledge, but about converting that knowledge to action—action that leads to performance results. The two higher levels of Lean Certification require mentoring portfolios, as well. This requirement, that "each one reach one," helps drive other important results for those in the lean profession—the transition of the practitioner toward becoming a sensei (teacher), expanding the ranks of the lean practitioner community, and the sharing of accumulated experience and lessons learned with others.

Certification Pitfalls

Certification is assurance, not a guarantee.

The Lean Certification provides an indicator of capability, but like every indicator, it points to the actual condition with less than perfect accuracy. Many doctors have a wall full of diplomas and positive reviews from their patients, but these indicators are not a 100 percent guarantee that you will receive proper treatment. Lean practitioners, along with their employers or clients, should treat a Lean Certification as a strong indicator of capability, but not more. Every professional must prove themselves daily through the habits they demonstrate in their practice.

Lean (and Lean Certification) are not "what you know," but "what you do with what you know."

A handful of candidates approach Lean Certification the same way they have probably approached other certifications in the past: Take a course, get a piece of paper, and slap it up on the wall next to the others. Their lean project portfolios are typically disappointing, lacking quantifiable results, clear capabilities to lead and empower others, systematic thinking, or mindful reflection. Make no mistake: Passing your lean knowledge exam is an admirable achievement, and submitting a successful lean portfolio is even better. But the ultimate aim of both is to improve your ability to achieve lean results.

About the Author

Jeff Fuchs chairs the SME/AME/Shingo Prize/ASQ Lean Certification Committee on Oversight and Appeals. He is director of the Maryland World Class Consortia and president of Neovista Consulting.

The Lean Handbook Review

by Chris Hayes

Qualifying to become a certified lean professional at the Bronze level can be an overwhelming task for someone who is not familiar with the basic tenets of lean. With four recommended books from four separate authors, preparing for the exam can leave one wondering what information is most important and what specifically is needed from each of these works in order to pass the Lean Bronze Certification exam (ASQ/SME/AME/The Shingo Prize). Although cited not to be an exam preparation manual, the intent of *The Lean Handbook: A Guide to the Bronze Certification Body of Knowledge*, from ASQ's Quality Press, is to provide one single source for those wishing to understand the Bronze Certification Body of Knowledge (BoK) and ultimately help those who wish to pursue it to pass the Lean Bronze Certification exam.

The book has 378 pages of content arranged in the format of the Lean Bronze Certification BoK version 3.0 (2008). The rubric for the BoK is included in the book's appendix, which is an added bonus. Also included in the appendix are the recommended readings for all three levels of certification as well as a detailed glossary of lean terms that can be helpful on the exam.

There are 26 (forgive me if I counted incorrectly) authors and co-authors, many of whom are well-known lean practitioners. The content from each author was excellent—my only issue being a few authors whom I perceived to be a little more self-promoting than I care for in a book intended for this purpose. Otherwise, I thought the content was presented at the applicable level of learning and was offered in an easy-to-understand format. This book was written appropriately for the beginning lean practitioner.

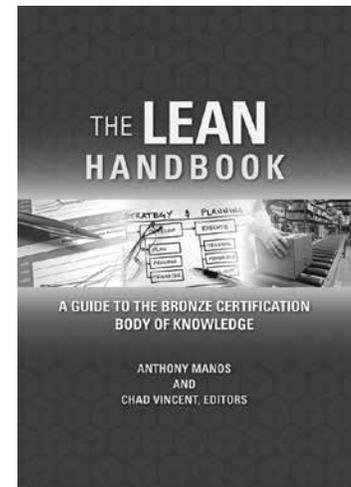
Each author gives the reader a brief, but detailed description (for the Bronze level) of each area of the BoK as well as a description of some of the tools and techniques that are commonly used in each area. The Bronze level exam is largely based on continuous process improvement (60 percent of the exam), and this book does due diligence in providing the reader a clear understanding of each topic area, including in many cases good examples that provide the reader with more than just a conceptual understanding of the subject. Kudos to the authors for compiling such great content. The flow of writing between authors varies, as would be expected, but with minimal amount of sacrifice to an overall feel of consistency throughout the book. Being somewhat overly conscious of such things, I did recognize some missed editing opportunities, mostly grammatical in nature. Being that the book is written by and for those in the quality profession, I'm sure corrections are already in the works.

As a follower of some of the original lean leaders, and as somebody who read all four recommended readings, I really didn't understand the need for nor did I intend on liking this book. I certainly didn't understand why anyone would want to steer would-be certificate holders to pass up learning from those I consider to be masters in this field.

After reading *The Lean Handbook*, my perception of the value of this book for those studying for their exam has changed. As stated in the book, the intention is not to take anything away from the great lean works that have preceded it, but to complement those works by providing a high-level overview of the BoK on which the Lean Bronze Certification is based.

Is reading this book enough to allow a reader to pass the Lean Bronze exam? That depends on the reader's experience and ability to truly grasp the content. I believe the book gives enough detail to provide the exam taker with a great reference document; however, read alone, it leaves a comprehension gap that only practical experience can fill. The Bronze level exam, although focused at the tactical level, requires an examinee to not only understand the content, but also how to apply certain tools in practical situations. The book by itself will not provide this to the reader; however, none of the four recommended readings—each on its own—would either.

Can this book be substituted for the four recommended books? Possibly, but I do not recommend this. It is imperative to remember that the exam question bank does not currently draw from this book. This book contains the authors' translations of content from



many sources as well as their own material. It is highly likely that there is content in this book that will not specifically match the questions on the exam.

My recommendation: Read the recommended books, apply the concepts practically to gain a better understanding of the tools, and take this book with you to the exam as your reference guide. I believe that this work more than satisfies its intent and will surely become another great resource in many libraries around the world, including this reader's own personal lean library.

About the Reviewer

Chris Hayes is the president of Impact Performance Solutions, a professional consulting and training organization that provides optimized services and solutions to businesses to help them achieve their most critical objectives. She has been a student of lean for more than 20 years in various industries including healthcare, aerospace, manufacturing, distribution, and nonprofit. Hayes has a BSBA in project management with certifications as a Quality Engineer (CQE), Quality Auditor (CQA), Manager of Quality/Operational Excellence (CMQ/OE), Project Management Specialist, Human Resource Development Specialist, Organizational Systems Improvement Specialist, as well as Bronze Certification in Lean Manufacturing (LBC). She is a reviewer for Lean Bronze portfolios and is currently working on completing her MBA at the University of South Dakota.

WCQI 2013 Recap

I trust you are having a restful and relaxing summer. We hope you attended the ASQ World Conference on Quality and Improvement (WCQI) in Indianapolis, IN, and either stopped by our booth (for your LED T-shirt), hospitality suite, or both. We had a fantastic time again this year, even without the Disneyland fireworks! We participated again in the joint ASQ division booth activity, participating in a bingo-type game with 16 other divisions. This enabled more people to visit our booth than would have otherwise. The Sunday prior to the conference we had a successful business-planning meeting and we welcomed new participants who inspired us to think of additional ways to provide member value. As usual we had conference giveaways. Kam Gupta of Chicago, IL, won a copy of *The Lean Handbook* and Gary Kollm of Murrells Inlet, SC, won five *Memory Joggers*.

Next, mark your calendars! We plan to be at the 2014 Lean and Six Sigma Conference, February 24 – 25, in Phoenix, AZ, as well as at WCQI 2014 in Dallas, TX, May 5 – 7. We are planning to have a different giveaway for our members, so please stop by the booth. We are also planning to host our hospitality suite again next year, so please stop by.

Kiami Rogers

Immediate Past Chair,
Nominating Chair
kr Rogers_asq@verizon.net

Lean Enterprise Division Fellow Nomination Process

*by Alan Mendelsohn, ASQ Fellow
Fellow Nomination Chair*

What is an ASQ Fellow? According to the ASQ website, “Fellow nomination is peer recognition that a member’s commitment to the quality profession has been exhibited beyond that of the average member.” After nomination by a member unit, such as the Lean Enterprise Division (LED), applications are reviewed by an Examining Committee, which recommends to the ASQ board of directors qualified candidates for approval. If the board approves, that member would be recognized as a Fellow.

To be considered for Fellow nomination, a Senior member must demonstrate activity in six areas of proficiency. While a minimum score must be achieved in the six areas, a certain minimum overall score of 28 points must also be attained. Even if you are very committed and experienced in one or more areas, you are still required to achieve the minimum score in all six areas.

So what are the requirements to be nominated for consideration as a Fellow? There are three basic qualifications that must be met:

- Active experience in quality-related positions for 15 years
- Senior member of ASQ in good standing for five years
- Attained distinction in quality-related disciplines

In addition, each candidate is evaluated in six categories, each with a minimum score:

- Technical experience (4 points)
- Occupational responsibility (3 points)
- Publications, papers, and presentations (2 points)
- ASQ activities (2 points)
- Non-ASQ activities (1 point)
- Teaching/Consulting (2 points)

More information on the requirements for a Fellow nomination can be found on ASQ’s website at asq.org/members/account/fellow.html.

Each year the office of the chair (current chair, past chair, and chair-elect), in collaboration with the Fellow nomination chair, identifies potential Fellow candidates for consideration. If an individual senior LED member wants to be considered for possible Fellow nomination, they can also contact the Fellow nomination chair for further information. After an individual completes a Fellow application and it appears that the requirements are met, a Fellow coach will be assigned to work with the member to complete all the required documentation that supports the application. The Fellow nomination chair reviews the application and backup, and submits it to the LED office of the chair for review, concurrence, and signature. The nominated application is then submitted to ASQ.

Initial completed applications are to be submitted to the Fellow nominations chair by February 1 to allow sufficient time for the process to be completed. The application and backup supporting documentation must be submitted to ASQ prior to the May 1 deadline. By January of each year, ASQ announces the election of the new Fellows.

Lean Agile Leadership: Keeping the Busy Person Motivated!

by Terra Vanzant-Stern, Ph.D.

The old adage, “If you want something done, give it to a busy person,” for the most part, still holds true.

Most leaders have at least one busy person they can count on. This person will make sure the chore is successfully completed no matter what! It is no secret that leaders often overuse their hardest-working resources.

The problem is that one day, the busy person silently moves on. Leaders call it burnout. Often too late, motivational techniques and awards are used in an attempt to re-engage the resource. The issue isn't that complicated. Busy people are just too busy to do all the things the leader wants to them to accomplish. Busy people become overwhelmed, not burned out.

Fortunately, it is possible to keep a busy person motivated. One answer is exploiting a few Agile leadership skills. Agile leadership requires a different style of working with people. It is best employed in organizations that are subject to frequent changes and require fast response times.

Once an initiative has crystallized, leaders can depend on assistants who engage in conventional project management to achieve the mission. In these cases, the leader has a specific role. The job is to provide overall support and inspiration. The leader may also ensure that some form of responsibility and accountability matrix is being utilized. This is the busy person's perfect world. Give them a list of clear expectations and they excel.

Agile leadership is appropriate for situations where decisions must be made rapidly, and the subsequent assignments must be performed quickly. Agile is also used when the conditions include a high level of uncertainty and the outcome is less than clear. If a leader relates to the words of Rufus Wainwright, singer-songwriter, “I don't know what, but I know it's not this,” it may also be a good time to consider Agile techniques.

Generally, when ad-hoc or unplanned tasks occur, it is the busy person who is nominated or feels pressured to volunteer. This often takes this individual out of their comfort zone. This is not necessarily a bad thing, but if the same person or people are recruited each time, problems arise. Agile leadership principles can help handle these predicaments. The ancillary benefit is that Agile techniques often strengthen the team in the process.

Agile leadership is borrowed from the Agile approach to software development methodology. The Agile model is based on methods to handle incremental development where the solution evolves through collaboration of self-organizing and cross-functional teams. The processes that most apply to effective leadership are the activities that promote adaptive planning.

This protocol encourages a flexible response to change. Much like playing chess, the leader anticipates interactions and ramifications throughout the game, or in this case, the business cycle. There are a number of tools available to Agile leaders. The best one for motivating busy people to stay busy and productive is *timeboxing*.

Timeboxing plans activity by allocating time boxes. The schedule is divided into a number of separate time periods. Each time period has its own deliverables. With timeboxing, the deadline is still fixed but the scope is reduced. This focuses work on the most important deliverables. Timeboxing is a way to help busy people feel more accomplished. Timeboxing promotes taking all the petty tasks and putting them in a box. Small, but important things are accomplished. In the time box a specific but relatively small amount of time is spent focusing on the tasks in the box. This increases efficiency and raises time awareness. It also pushes the meaningful work to the front of the to-do list.

Another Agile tool is the popular Scrum meeting, and there is nothing leaner in Agile. Scrum meetings are stand-up meetings designed to last 15 minutes. During this time team members report on their current work, any challenges they may have, as well as future work. The format is high-level, bullet-point narratives. When Scrum meetings are applied to a specific lean objective or project, meetings can be as short as five minutes. This tool is

designed to promote collaboration as well as capitalize on the collective intelligence of the team. Agile also favors the use of a burndown chart. A burndown chart is a graphical representation of work left to do vs. time. It is basically a run chart of what work is left to do. By knowing this, estimates of completion dates may be adjusted quickly.

Agile welcomes change even late in the development of a project, while with traditional project management, organizations are often so intent on completing the project or task that improvements are discounted. For the busy person, this may result in extra assignments or rework. Agile also promotes simplicity. In the new economy, leaders still lead, but they must also be good managers. This means utilizing their busiest, best, and brightest resources. By employing a few Agile tools you can protect these individuals from feeling burned out or overwhelmed, and retain their talent and contributions.

About the Author

Terra Vanzant-Stern, Ph.D., is the chair-elect for the Lean Enterprise Division and co-owner of SSD Global Solutions, a training firm specializing in accelerated Lean Six Sigma training for executives. She is a certified SPHR, GPHR, as well as a Six Sigma Master Black Belt. She is the author of *HR Concepts for Project Managers*, *Lean Six Sigma: Practical Bodies of Knowledge* and *Lean Six Sigma: International Standards and Global Guidelines*.



600 N. Plankinton Ave.
Milwaukee, WI 53203-2914

The Global Voice of Quality™

NON-PROFIT
U.S. Postage
PAID
Milwaukee, WI
Permit No. 5419

Lean Enterprise Division | September 2013 | Volume 12, Issue 2

2014 LEAN AND SIX SIGMA CONFERENCE February 24 – 25, 2014 | Phoenix, AZ Sustaining Results Through a Culture of Quality

The 2014 Lean and Six Sigma Conference offers a special opportunity for you to get your lean and Six Sigma certifications right in Phoenix before you attend the conference. Don't miss this chance to establish yourself as a recognized lean and Six Sigma expert, and make an important investment in your career.

Lean and Six Sigma Conference Certifications

**APPLY FOR
CERTIFICATION**

Application Deadline: January 10, 2014
Exam Date: February 23, 2014

- Six Sigma Black Belt
- Six Sigma Green Belt
- Lean Bronze Level Certification (*SME/AME Shingo Prize/ASQ Partnership*)

Save the date for the 2014 Lean and Six Sigma Conference. It doesn't matter if you are in manufacturing, service, government, or healthcare; or whether you're just starting to discover lean and Six Sigma or a seasoned veteran, you will discover how to apply lean and Six Sigma tools and methodologies to produce sustainable results to move toward your organization's bottom line to make a difference in your organization.

Visit sixsigma.asq.org to apply for your certification and learn more about the conference.

NEXT ISSUE

In addition to T³ and Lean in Print, we will have articles on (1) lean project management and (2) the paradigm shift in product development with lean. We will also take a virtual trip to Japan where Mark Graban visits two hospitals with an eye for lean. Finally, we will start to look ahead to the 2014 Lean and Six Sigma Conference.



Please consider the environment.

Do you really need a paper copy of this newsletter? Please send a message to lmilanowski@asq.org with "Electronic Only" in the subject line.