

Lean Enterprise Division

May 2014 Highlights

- 2 Note From the Editor
- 4 Going Green Using Lean
- 6 T³ Tools, Techniques, and Templates: Right Sizing Equipment
- 7 Lean vs. Six Sigma: Synergizing and Going Beyond
- 9 Lean Project Management
- 10 Learning From the Experience of ... Jim Bowie
- 11 LED Webinar: True North in Service With Hoshin Kanri

Chair's Message



As I write this in Michigan, it is March, and I would like to say the robins have returned along with the winds for flying kites and the forsythia blossoms, which traditionally signifies the coming of spring. Yes, there are some pretty confused robins here and unless you like flying kites in 12°F (-11°C) or digging into the piles and piles of snow looking for forsythia blossoms, you can forget thoughts of spring coming to this state anytime soon. Instead I am remembering the warmth from the Lean and Six Sigma Conference in Phoenix, AZ, and am looking ahead to the World Conference on Quality and Improvement and the warm Dallas, TX, days of May 5 – 7.

I hope those of you who were able to attend the 14th Annual Lean and Six Sigma Conference enjoyed it as much as I did. With more than 50 concurrent sessions, it was difficult to choose which ones to attend. Dr. Tony Kern opened with a keynote address on human performance in high-risk environments. To me, he brought us a very different paradigm with regard to preventing human error through personal mastery, recognizing human errors occur primarily due to internal threats rather than external ones. I also sat in on David Hicks' and Beth Reid's session on using Toyota's kata approach as your "personal sensei" using the PDSA pattern to learn and improve our own applications of lean.

This was also the first Lean and Six Sigma Conference where the Lean Enterprise Division co-sponsored a workshop on Lean in Healthcare with the Healthcare Division. The workshop was held on the Wednesday following the conference and had 18 participants, mostly from hospitals and clinics. The instructor, Marti Beltz, led a very hands-on demonstration of ways to create and sustain a lean culture in healthcare organizations.

The upcoming World Conference also looks like it is going to be fantastic. First, Dallas is a fantastic city, and we have many of our own members presenting this year including Patricia Morrill, Chris Hayes, Lance Coleman, Scott Smith, and Javed Cheema. To encourage student participation, we are sponsoring all Student members of the Lean Enterprise Division by paying the WCQI student registration fee of \$95. Just stop by our booth in the Exhibit hall (#825) and we will give you a refund. I look forward to seeing you all at the World Conference; while you are there, come visit us at our booth and receive a free gift for just being a member.

For those who cannot make it to the World Conference, please stay in touch. I also want to welcome Jon Voigtlander to fill out the 2014 term as our new division secretary. Jon is a commander in the U.S. Navy and an active lean practitioner. We are always looking for members who wish to join our leadership team—check out our organization chart to see where you might like to fit into it.

All the best,

Frank Murdock
Chair



**Lean Enterprise
Division**
The Global Voice of Quality™

Lean Enterprise Division Contacts

Frank K. Murdock, Chair
FKM Consulting, LLC
fmurdock@fkmconsultingllc.com

Terra Vanzant-Stern, Chair-Elect
terra.stern@ssdglobal.net

Kiami Rogers, Past Chair
krogers_asq@verizon.net

Maria Stoletova, Membership Chair
m_stoletova@hotmail.com

David Behling, Programs
david.behling@goodwillsew.com

Tammy Miller, Treasurer
tammy.miller@plexus.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
asmquality@aol.com

Don Smith, Education
dons322@gmail.com

Javed Cheema, BoK and Certification
jmcheema@sbcglobal.net

Dave Harry, Marketing Chair
Process Whisperer Consultants, LLC
dave.harry@gmail.com

Jeanine Becker, Staff Liaison
ASQ
jbecker@asq.org

Note From the Editor

I just attended another great Lean and Six Sigma Conference in Phoenix, AZ. The conference was well attended with 501 registered, representing 10 different countries as well as 45 states within the U.S. I really enjoy attending the conference because not only do I get to interact with friends I may only see once or twice a year, I always come back with multiple ideas I want to implement. This year the program was jam packed with 46 sessions, six workshops, two preconference courses and three post-conference courses. Also, this year for the first time, there was a third day relating to lean in healthcare.

In this issue we pay homage to Earth Day 2014, on April 22, by presenting “Going Green Using Lean,” written by Namita Chatterjee of Genpact. Another first-time author, Syed Hayat, explores the relationship between lean and Six Sigma. Our T³ column, by Chad Vincent, looks at “Right Sizing Equipment.” We also get to “Learn From the Experience of ... Jim Bowie” and conclude with an article on “Lean Project Management” by Division chair-elect Terra Vanzant-Stern, Ph.D.

Next on our agenda, we are heading to the World Conference on Quality and Improvement in Dallas, TX. Please stop by our booth to let the division know how we are doing in serving your needs, or just to introduce yourself and say hello. Also, we would love to see you stop by some of these conference sessions conducted by members of our leadership team.

- **Process Improvement Strategy Deployment**
M14 at 1:30 p.m. on Monday, May 5 – Patricia Morrill
- **The Customer Driven Organization: Using the Kano Model**
M24 at 3:00 p.m. on Monday, May 5 – Lance Coleman
- **Improvement Kata: Wax On, Wax Off**
M35 at 4:15 p.m. on Monday, May 5 – Chris Hayes
- **Improving Productivity Through Peace of Mind**
AF05 at 5:30 p.m. on Monday, May 5 – Scott Smith
- **Managing by Quality Indicators**
W17 at 9:30 a.m. on Wednesday, May 7 – Javed Cheema

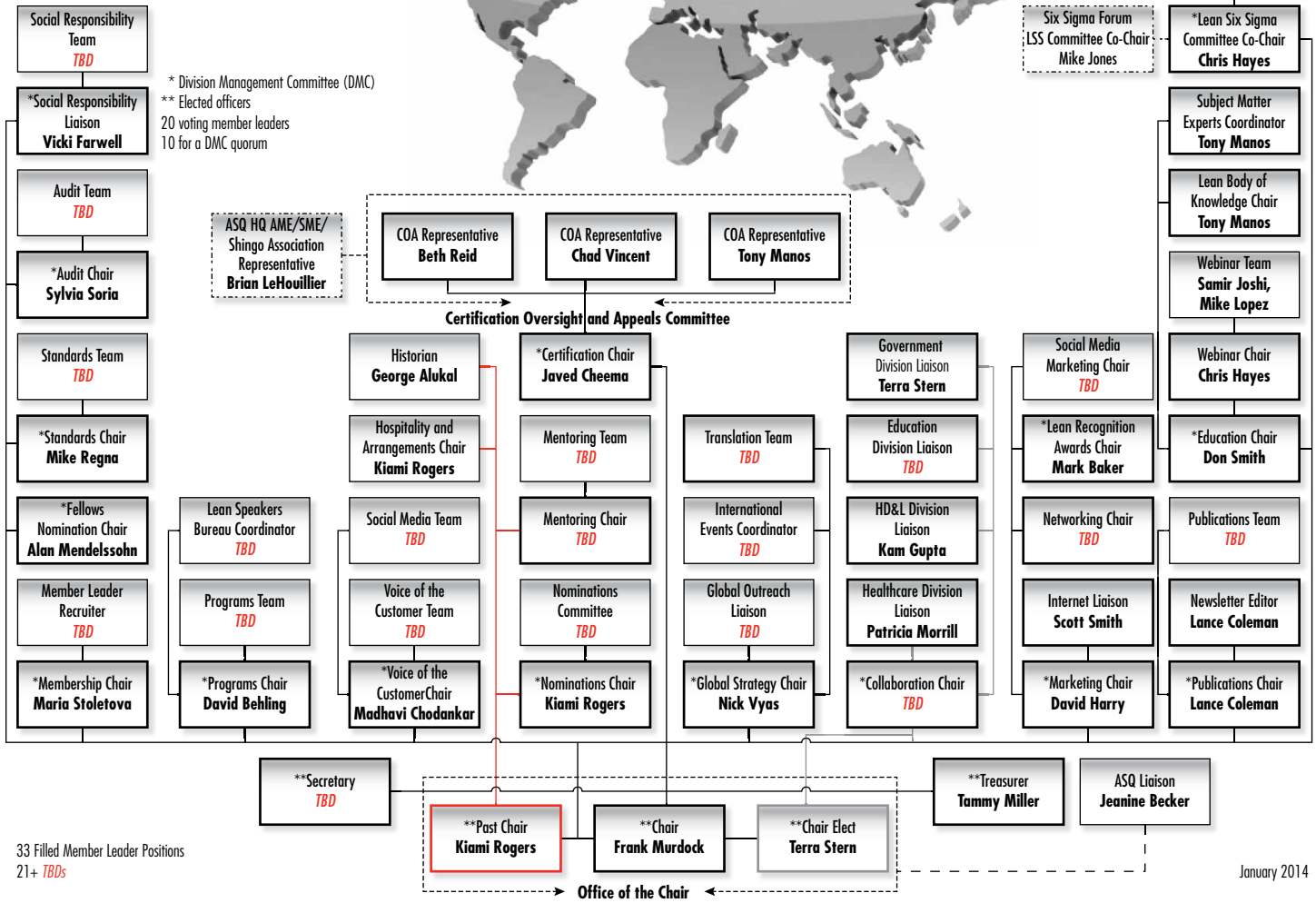
Finally, welcome and thank you to Imelda Hernandez, Kathryn McIver, and Janet Bautista-Smith, the newest members of our Publications Committee. Also, thanks to Scott Smith, Madhavi Chodankar, Nick Vyas, P.R. Ramesh, and Sanjay Jolly for their willingness to serve throughout last year. And last but not least, thanks, as always, to all of you for taking the time to read our newsletter. Hope to see you in Dallas!

Kind regards and safe travels,

Lance B. Coleman
Newsletter Editor



Members Everywhere



33 Filled Member Leader Positions
 21+ *TBDs*

January 2014

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 |

Going Green Using Lean

by Namita Chatterjee

This article attempts to highlight the application of lean in the service industry by identifying and mitigating different forms of wastes in the facilities management processes and thereby minimizing their costs.

As the saying goes, every drop makes an ocean and every penny saved is a penny earned!

Lean Six Sigma is part of Genpact's DNA. Unlike many companies that have simply embraced it as a function, for Genpact it permeates what they do and is highly visible in the company's day-to-day operations, its people processes, and its leadership direction. Genpact continuously leverages lean thinking to eliminate waste, standardize operational processes, and drive continuous improvement on the floor. Having witnessed considerable initial success, Genpact decided to extend lean concepts to other areas in the company. Energy optimization was one such area. This was effectively done by putting visual controls (a simple lean tool) to act as indicators for energy consumption. This ensured that everyone could quickly and easily understand the status and performance of the work system. The company achieved this with the help of a team who brainstormed ideas on how to reduce overall energy consumption, owning the improvements, and driving it continuously on the ground with coordinated efforts from the lowest hierarchy of people.

Today, sustainable development has become an integral part of every organization's growth strategy. In the area of environment, one of Genpact's key focus areas is to reduce carbon footprint. To address this, rationalizing energy consumption became a key focus area. While new technology provides the ability to address and bring down energy costs, driving change in behavior to reduce waste is a very powerful tool.

Genpact's energy frameworks have been set up to reduce its carbon footprint and deliver sustainable management in its 72 offices in 18 countries. Like many organizations, Genpact has invested in several high-end engineering projects to monitor and conserve energy. However, simple and well-executed lean initiatives have also been incorporated with significant impact at a minimal cost. Lean concepts and techniques are widely used all over the world today to eliminate waste in all processes, including waste of electricity. Genpact extended the same thinking to reducing energy consumption at its Jaipur, India, office through a campaign called "Bijli Bachao," which means "save energy."

For this green initiative, the team adopted a two-pronged approach: using effective visual management tools and educating employees about their role in energy conservation. This initiative was targeted at the lowest hierarchy of the facility management team, making them partners in the energy-saving journey. Led by the regional energy manager, several training and awareness sessions on energy consumption, economic cost of energy, and the team's role in energy conservation were debated and discussed.



cont. on p. 5

Genpact Introduced Visual Management

The team color coded all lights, both internal and external, based on energy consumed. Pole lights in the common areas with maximum energy consumption were color coded red to signify that this should be the first priority for reduction during nonpeak work hours, followed by yellow, blue, and green for decreasing energy consumption.

This delivered the following benefits:

- Easy to track which lights can be turned off during nonpeak business hours and holidays
- Easy measurement and control of hourly consumption
- Visible control on wattage
- Convenient to change fused lights

Each watt of energy consumed was given a monetary value to quantify savings that could be achieved. Three teams, called the “Bijli Battalion,” were formed to cover 24x7 operations and included the duty logistics officer, carpenter, plumbers, electricians, security guards, shift engineers, and the housekeeping staff. Each team was educated on the visual management concept and the associated energy spends so they could drive it in their shifts. They were given energy consumption targets based on the shift occupancy and last 12 months’ consumption data.

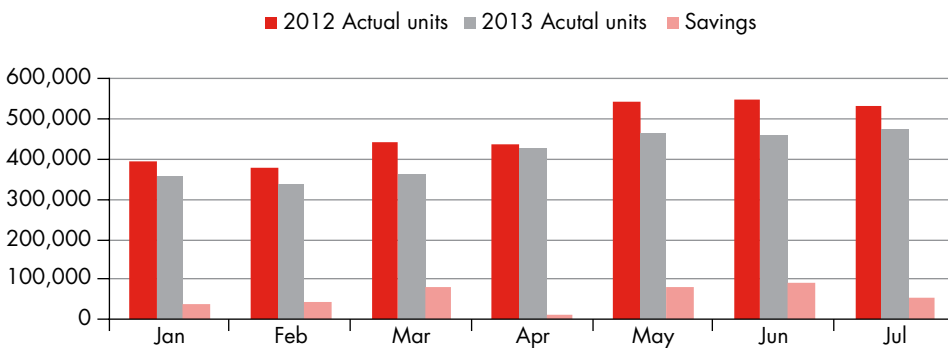
The actual consumption was measured against the target; and to drive healthy competition, the best team was awarded.

Visual dashboards on energy consumption were displayed on each floor of the building, clearly showing performance by the teams. This helped break the siloed approach of driving energy initiatives and moved past the philosophy of ownership just residing with the energy manager.

Impact Delivered: Savings

- In the first four months of 2013, despite a 40 percent hike in diesel rate and 17 percent hike in power rate, the initiative saved \$36,000 versus the operating plan.
- In seven months, the actual savings were \$9,000 versus actuals for 2012.
- About 400,000 units of electricity saved in the first seven months versus actuals for 2012.

Snapshot of our energy consumption comparative data:

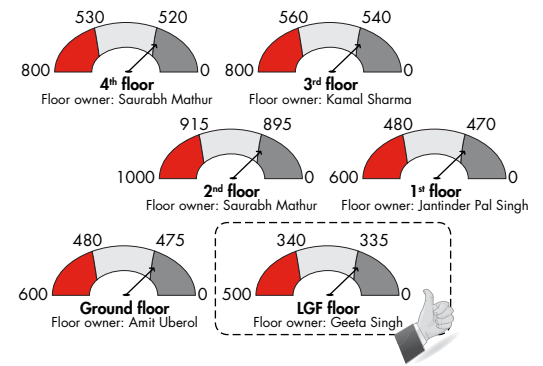


This lean idea empowered the entire facility battalion of security guards and housekeeping staff to drive energy efficiencies and hard savings through visual controls.

About the Author

Namita Chatterjee is a Master Black Belt at Genpact. She is a GE-certified Lean Six Sigma Green Belt and Genpact-trained and -tested Black Belt. She has a BS in chemistry and a master’s degree in finance. She has more than 15 years of experience in diverse functions such as business development, operations management, and Lean Six Sigma.

Energy consumption floor owner wise



Total cost/capacity

| Total cost/ 8 hour/light | Capacity |
|--------------------------|-----------------|
| 25 | 500 W |
| 15 | 250 W |
| 10 | 150 W |
| 1 | 70, 13, 11, 5 W |

T³ Tools, Techniques, and Templates: Right Sizing Equipment

by Chad Vincent, LBC (or COA Representative)

Overproduction is one of the lean wastes. According to Taiichi Ohno, overproduction is “our worst enemy.”¹ But what exactly is the source of overproduction? In simplest terms, it is when we produce a product or provide a service when a customer does not demand it. In order to achieve this, we as product/service providers must have the excess capacity of our resources, both human and machine, to provide more than what is required.

As lean practitioners, we have a tendency to look at the value stream and look for ways to match our production cycle time to takt time, i.e., consumer consumption rate. We look at work cells and the number of people required, and optimize them to accomplish a given customer demand. Often we perform this optimization under the constraints of using the equipment that we currently have. However, a focus of Ohno and his associates was to “miniaturize” machines so that process steps involving various pieces of equipment could be arranged closer to each other to maximize the utilization of human resources. The miniaturizing of equipment is often referred to as right-sized equipment.

According to *The Lean Handbook*, “The primary goal of right-sized equipment is to ensure that equipment and tools are efficiently and effectively utilized to maximum extent.”² This helps eliminate the excess capacity that is the root cause of overproduction. Ohno took this type of thinking very seriously, often questioning the purchasing of specialized or “high-performance” machines that were commonplace in the American mass production system. He saw that having the right-sized equipment forced the elimination of overproduction and the other wastes that are caused by it.

The concept of right-sized equipment can easily be incorporated into work cell kaizen events. During the event, consider taking an extra step to determine what equipment is used in the work cell before you decide where the equipment will be located in the cell. By taking into account right-sized equipment, your work cell may look very different if the equipment is made to a capacity much different than the takt time.

The right-sized equipment criteria are defined as the following:

1. Does the equipment allow for the processing of one item at a time, i.e., single-piece flow?
2. Does the machine have a mall store-shaped layout? Equipment should have a footprint that is narrow in width and deep in depth like a store at a mall. This allows for the front of the machine to be as close as possible to the next machine to reduce movement.
3. Is the equipment organized like a sidewalk shop or a grocery store milk fridge? Operations of the machine should be organized such that the work is performed at the front of the machine while supporting operations, such as supplying materials, is performed in the back of the machine.
4. Is the machine the same size as the part/product it is

producing? Much like the narrow criteria, this type of thinking allows for minimizing the footprint of the machine and for smaller products allows for mobility and flexibility of machine use.

5. Does the machine and process cycle time match takt time? The equipment cycle and manual operation of the equipment should be no faster than the takt time of the product/service it is producing.
6. Is the machine completely self-contained? Equipment should be completely self-contained. This allows for easier mobility where it can be moved and easily hooked back up to utilities for operation.
7. Does the machine operate on a load-load basis? This is when the operator of the machine is only loading the equipment with materials for the next process step. This implies equipment—with auto-eject features—that is easily accessible to the operator.
8. Does the equipment have a fast setup? Changeovers for the equipment should occur in less than takt time, and the first part should always be good.
9. Is the machine safe, clean, and ergonomic? The machine should be safe and ergonomic to operate, incorporating guarding, and should have the ability to be kept clean or be able to be cleaned in 60 seconds or less.
10. Does the machine allow for easy operation? The operator should easily be able to recognize that equipment is in the correct operating condition; and all steps should be visual. Controls and feedback mechanisms should be in the front or at the point of use by the operator.
11. Can the machine be easily maintained? All maintenance, including TPM activities, must be capable of being performed without great effort or downtime.
12. Are machine components standardized with other equipment in the facility? Having equipment that consists of specialized parts that are not easily replaceable or cannot be acquired in a timely manner should be avoided. By standardizing components of equipment in the facility, spare parts inventories can be reduced; spare parts should be on hand when emergency breakdowns occur.
13. Is the machine mistake proofed? Equipment should be designed with mistake proofing in mind. Operator decisions are minimized, such that automation allows for the auto-reject of defective product to be away from the operator.
14. If equipment is to be built, is the development and build time short? As often with complex equipment, the development and build times are prolonged. Equipment should be simple for shorter development, build, and installation time.

During your next work cell layout kaizen, consider the equipment in the work cell and determine if you have the right-sized machines.

1. Ohno, Taiichi. *Toyota Production System: Beyond Large-Scale Production*. New York, NY: Productivity Press, 1988. p. 59.

2. Manos, Tony, and Chad Vincent, eds. *The Lean Handbook*. Milwaukee, WI: ASQ Quality Press, 2012. p. 248.

Lean vs. Six Sigma: Synergizing and Going Beyond

by Syed Aftab Hayat

Introduction

To study quality improvement processes, an understanding of defects must first be established. Process imperfections can bring variability into a production system. These variations can result in a product that is not per the standard specifications and hence defective.

Six Sigma uses statistical control procedures (Oakland, 2002) to control variability in a process. It constrains process variation so a product being produced remains within the allowed variation, i.e., six standard deviations from the average (Micon, 2013) to have it fall between the upper and lower specification limits. A process reaching the Six Sigma level will have statistically reduced process defects to less than two in a billion, but due to long-term process variations (Tennant, 2011) a practical defect rate of Six Sigma level is said to have less than 3.4 defects per every million parts produced. Implementations of Six Sigma can help an organization eliminate and filter out the factors that have a significant impact on output deterioration. This helps administer control to deliver consistent quality. The focus of Six Sigma is on enhancing the value-adding activities in a business process and to imply a total quality management (TQM) with data analysis tools and project management methods. Six Sigma is generally adopted by organizations that have reached a certain maturity level in quality and quality management to enhance their performances (Gabor and Munteanu, 2010).

Lean, as a comparison, describes a continuous commitment to improve a manufacturing or business process (Quality One, 2013), although any type of process can be improved using the lean methodology. The constant in any lean activity is the discovery and removal of mainly eight types of waste (Walters, 2011). By doing so, lean exploits and eliminates the defects hidden in these wastes. Lean introduces concepts of kaizen, which empowers front-end employees to solve the problems with simple but powerful tools of Ishikawa and Pareto charts (Terwiesch, 2013). Kaizen events only require a handful of people who work together to solve a problem that affects them. They work in a manner to eliminate all nonvalue-adding activities to help improve process flows. Lean systems can sometimes lead to myopia (Anthony et al., 2011). What critics of lean fail to identify is that the small improvements being done by front-end employees who deal with issues at their level take pressure off management. The main cause of failure of sustaining many change processes is the lack of management commitment. Thus the ability to ease implementation pressure away from management has resulted in the popularity of lean. This has led to lean being adapted across a diverse range of beneficiaries, e.g., restaurant chains (Breyfogle, 2012), hospitals (Jacobson and Johnson, 2006; Weed, 2010).

For adaptation, a thorough comparison of lean and Six Sigma is made in Nave, 2002, with a study into the Theory of Constraints (ToC): "If your organization values analytical studies and the relationships of data, charts and analysis, Six Sigma is a perfect program for you to start with. If your organization values visual change and 'right now' time, then lean thinking might be the way to go. If your organization values a systems approach where total participation is not desired and if it values the separation between worker and management, then ToC might be a good way to start."¹ (Nave, 2002)

Some professional companies (Martin, 2012; Toppazzini, 2012) implementing lean advocate that it only provides speed. Doing things rapidly with constant rework is not beneficial, and thus these companies recommend using it in combination with Six Sigma so high process speeds provided by lean are sustained (Ultimus, 2009). However, lean should not be perceived to work faster, but to provide a smoother process without wastes (Pearsoon et al., 2006). It is stressed (Walters, 2013) that companies must achieve standardization and optimization through lean tools first and then adopt Six Sigma to further improve process outputs and consistency. Although both possess many similarities and can be distinct in their own ways, both can be equally effective given management backing (Halliday, 2013). A common approach to both lean and Six Sigma is data gathering and statistical analysis through an iterative problem-solving approach (Terwiesch, 2013).

Both lean and Six Sigma can be categorized as tools to improve quality processes but with one stark difference. They both target different dimensions of quality, i.e., lean reduces

waste whereas Six Sigma focuses on minimizing defects. Lean does so through incremental improvements by reducing all nonvalue-added activities whereas Six Sigma reduces defect probability by minimizing variations and improving process capabilities. Lean, with its kaizen events, provides a better on-ground action for implementation, and Six Sigma with its statistical control procedures (Cachon and Terwiesch, 2012) can further improve and measure the pace of quality improvement. Hence, it is concluded that the question lean vs. Six Sigma is defunct as both are competing for different "quality dimensions," i.e., waste elimination vs. variability control. The question is redirected toward synergizing both and adopting a Lean Six Sigma approach to reap the benefits of both lean and Six Sigma concepts.

It is proven that Lean Six Sigma can produce remarkable results. According to Dumitrescu, 2010, "Lean Six Sigma works not by speeding up the workers or the machines, but by reducing unneeded wait time between value-add steps." Several examples of successful implementation of the concept are illustrated. An approach (Breyfogle, 2013) categorizes problems in either special or common-cause condition and whether facing a problem with a known or unknown solution. A leading fashion company (Passariello, 2006) was able to use the methodologies to achieve huge process improvements. The product that was previously taking them more than 30 employees over a span of eight days to produce, came down to just eight employees making the same product in just one day. A pathological lab (Villa, 2010) was able to improve its turnaround time for processing results by 48 percent. A successful demonstration in the aggregate industry of rock crushing (Creasy and Todd, 2008), indicates the positive impact of using both the technologies. Overall equipment effectiveness was enhanced in a paper industry (Nabeel et al., 2012). Lean Six Sigma helped the medical settings (James, 2013) by reducing space and money invested in inventories and reducing patient/doctor/test wait times. This allowed an increased consultancy time for a patient

1. For additional reading on Theory of Constraints see Anthony et al., 2011.

Lean vs. Six Sigma cont. from p. 7

with a doctor. In similar settings it allowed doctors to successfully develop long-term relationships with patients (Hayes and Rollins, 2010).

Conclusion

When pursuing improvement, the focus should be on the need to improve (Martin, 2012) and not on how to improve by rising above the lean vs. Six Sigma debate. It is suggested (Nave, 2002) that whether the improvement methodology is based on lean, Six Sigma, or Theory of Constraints (Anthony et al., 2011), it is up to the organization to benefit from the concepts and techniques of each by matching their organizational needs and direction of quality improvement. Instead of choosing any one method, a hybrid approach makes more sense when seeking process improvement (Davenport, 2008). The determination of process improvement must not be limited to any particular methodology. Toyota maintained its own powerful model (Liker, 2003) that defined high performance in organizations and is attributed (Martin (a), 2012) to have led to lean. One must understand that quality improvement is an ongoing process and must not be stopped at even achieving Lean Six Sigma.

Any activity that can bring value to the quality processes of an organization must be actively sought and incorporated into the existing processes. Deployment of a successful holistic solution requires the right blending of methods, tools, and people (Hernandez, 2013). It is sometimes creativity (Burge and Bagg, 2013) and the sense of using the tools rather than the tools themselves that can aid in finding the solution to a problem.

“All we are doing is looking at the time line from the moment the customer gives us an order to the point when we collect the cash. And we are reducing that time line by removing the non-value-added wastes.”

Taiichi Ohno, founder of Toyota Production System, 1988

About the Author

Syed Aftab Hayat is a business entrepreneur with experience in financial and operations management. Currently pursuing his master's degree, he has been published in several international publications. He hopes this article brings positive change to the world of quality.

References

- Anthony A. Atkinson, Robert S. Kaplan, Ella Mae Matsumura, S. Mark Young (2011). *Management Accounting: Information for Decision Making and Strategy Execution, 6th Ed.* Prentice Hall Publishing. ISBN: 0137024975.
- Breyfogle, Forrest (2012). “Avoiding Strategic and Personal Risk in BPM Deployments.”
- Breyfogle, Forrest (2013). *The Business Process Management Guidebook: The Integrated Enterprise Excellence BPM System.* Citius Publishing.
- Burge, Ryan and James Bagg (2013). “Lean Six Sigma for Traditionalists.” *Engineering and Management Solutions at Work*, 45-6.
- Cachon, G. P. and C. Terwiesch (2012). *Matching Supply With Demand: An Introduction to Operations Management, 3rd Ed.* McGraw Hill Publishing. ISBN: 0073525200.
- Creasy, Todd (2008). “The Power of ‘Lean Crushing’ Unleashing Six Sigma and Lean in the Aggregate Industry.” Retrieved December 10, 2013 from: <http://www.bridgepointllc.com/publications/Power%20of%20Lean%20Crushing.pdf>.
- Davenport, Tom (2008). “Why Six Sigma Is on the Downslope.” *Harvard Business Review.* Retrieved December 10, 2013, from <http://blogs.hbr.org/2008/01/why-six-sigma-is-on-the-downslope/>.
- Dumitrescu, Constantin Dan, Ionut Dacian Tent, and Eugenia Cintia Iovone Dumitrescu (2010). “Lean Six Sigma Principles.” In the proceedings of the 21st International DAAAM Symposium, Vol. 21, No. 1. ISBN 978-3-901509-73-5.
- Gabor, C. and D. Munteanu (2010). “A Short Overview on Six Sigma.” *Bulletin of the Transilvania University of Brasov Series I: Engineering Sciences*, Vol. 3 (52).
- Halliday, Stephen (2013). “The Big Fight: Lean Manufacturing vs. Six Sigma.” Retrieved December 10, 2013 from WDP Consulting website, <http://www.wdpc.co.uk/articles/bigfight.pdf>.
- Hayes, Mary and Maurice Rollins (2010). “Getting More Done With Less: How Lean Six Sigma Enhances Performance.” *Policy & Practice*, Vol. 68 Nbr. 3.
- Hernandez, Francisco A. (2013). “No Silver Bullet.” *Six Sigma Forum Magazine* 12.4, 7-22, 3.
- Jacobson, James M. and Mary E. Johnson (2006). “Lean and Six Sigma: Not for Amateurs: Second in a Two-Part Series.” *Labmedicine* 37(3), 140-145A.
- James L. Christensen (2013). “Lean Six Sigma for Healthcare – Not If but When.” An article by StatOrg Services. Retrieved December 10, 2013 from <http://statorgservices.com/Papers/Lean%20Six%20Sigma%20in%20Healthcare.pdf>.
- Liker, Jeffrey (2003). *The Toyota Way.* McGraw-Hill. ISBN-0071392319/9780071392310.
- Martin (a), Karen (2012). “Lean vs. Six Sigma Debate (Sadly) Rages On.” Retrieved December 10, 2013 from The Karin Martin Group website, <http://www.ksmartin.com/the-lean-vs-six-sigma-debate-sadly-rages-on/>.
- Martin, Karen (2012). *The Outstanding Organization: Generate Business Results by Eliminating Chaos and Building the Foundation for Everyday Excellence.* McGraw-Hill. ISBN-13: 9780071782371.
- Micon (2013). Lean and Six Sigma Consultants: Retrieved December 10, 2013 from <http://www.miconleansixsigma.com/six-sigma-training-materials.html>.
- Nabeel Mandahawia, Rami H. Fouad, Suleiman Obeidata (2012). “An Application of Customized Lean Six Sigma to Enhance Productivity at a Paper Manufacturing Company.” *Jordan Journal of Mechanical and Industrial Engineering*, 6-1, 103 – 109.
- Nave, Dave (2002). “How to Compare Six Sigma, Lean and the Theory of Constraints. A framework for choosing what’s best for your organization.” *Quality Progress.* ASQ Quality Press. Retrieved December 10, 2013 from <http://www.asq.org/pub/qualityprogress/past/0302qp0302nave.pdf>.
- Oakland, J. (2002). *Statistical Process Control.* ISBN 0-7506-5766-9.
- Passariello, Christina (2006). “Louis Vuitton Tries Modern Methods On Factory Lines: For Craftsmen, Multitasking Replaces Specialization; Inspiration From Japan.” Retrieved December 10, 2013 from *The Wall Street Journal* website, <http://online.wsj.com/news/articles/SB116035785257486463>.
- Pearsoon T.J., S. Zaleski, and J. Frerichs (2006). Improving Preanalytic Processes Using the Principles of Lean Production (Toyota Production System). *American Journal of Clinical Pathology*, 125, 16-25.
- Quality One (2013). Lean and Six Sigma Web articles retrieved December 20, 2013 from <http://quality-one.com/lean/> and <http://quality-one.com/six-sigma/>.
- Terwiesch, Christian (2013). “An Introduction to Operations Management.” An online course on: www.Coursera.org/operations-003/.
- Toppazzini, Kyle (2012). Lean Without Six Sigma May Be a Failing Proposition. Retrieved December 10, 2013, from Quality Digest website, <http://www.qualitydigest.com/inside/quality-insider-column/lean-without-six-sigma-may-be-failing-proposition.html>.
- Tennant, Geoff (2001). *Six Sigma: SPC and TQM in Manufacturing and Services.* Grower Publishing Ltd. ISBN 0566083744.
- Ultimus Consulting (2009). “Lean vs. Six Sigma: What’s the Difference?” Retrieved December 10, 2013, from: <http://www.ultimus.com/Blog/bid/33875/Lean-vs-Six-Sigma-What-s-the-Difference>.
- Villa, Davide (2010). “Automation, Lean, Six Sigma: Synergies for Improving Laboratory Efficiency.” *Journal of Medical Biochemistry*, 29-4, 339-348.
- Walters, Chad (2011). “The Eight Wastes – A Primer.” LeanBlitz Consulting: <http://leanblitzconsulting.com/2011/11/the-eight-wastes-a-primer/>.
- Weed, July (2010). “Factory Efficiency Comes to the Hospital.” *The New York Times.* July 11, 2010, p. BU1.
- Walters, Chad (2013). “What is Lean vs. Six Sigma vs. Kaizen?” LeanBlitz Consulting. Retrieved December 10, 2013, from <http://leanblitzconsulting.com/2013/01/what-is-lean-vs-six-sigma-vs-kaizen/>.

Lean Project Management

by Terra Vanzant-Stern

There are three primary bodies of knowledge for project management: *PMBOK*[®], *PRINCE2*[®], and ISO 21500. When applying lean concepts to basic project management it is important to first identify the commonalities in all three bodies. One synergy, for example, is that each document strongly supports the concept of a project management life cycle (PMLC).

The PMLC has five phases: initiation, planning, monitoring and controlling, execution, and closure.

Let's summarize the steps in the phases. *Initiation* refers to selecting the goal. *Planning* the project involves estimating resources and time, identifying the order of tasks, determining the execution schedule, and performing a risk assessment. *Execution*, simply stated, involves performing the tasks. *Monitoring and controlling* occurs during all phases of the project. It includes monitoring resources, quality, risks, and overall project status. *Closing* is the phase that includes all the activities necessary for the project office to bring closure to the project effort.

Lean project management begins with closely observing each phase of the PMLC and envisioning lean opportunities.

Project Initiation

The project initiation phase is the most crucial phase in the PMLC. This phase establishes the scope. A major outcome is the project charter. A charter is typically developed by creating a business case followed by conducting a feasibility study. If there is more than one resource available to execute the project, a project team is established. There may also be a need to establish or partner with the project management office (PMO). There are several lean opportunities.

A supplier-input-process-output-customer (SIPOC) analysis could be used in either the business case or feasibility study. This would identify all the stakeholders in the project and consider the nonhuman resources that may contribute to the success of the project. Using a template to create the project charter is another simple way to make the process lean. The plan-do-check-act (PDCA) methodology may be the best way to establish a PMO.

Planning

Many aspects of project management come down to good planning. In the planning process lean supports the use of the seven management tools promoted in total quality management (TQM) literature. These include:

- The KJ method or affinity diagrams
- Interrelationship digraph (ID)
- Tree diagrams
- Prioritization diagrams
- Matrix diagrams
- Process decision diagrams
- Activity network diagrams

Suggesting a 5S model prior to beginning the project may help in the execution if the environment is physically disorganized. Performing a bottleneck analysis is useful in determining and correcting possible problems that may occur. Gemba walks can promote a greater understanding of constraints within the work environment.

Strongly promoted key performance indicators (KPIs) can be extremely powerful drivers of behavior and may be addressed in this phase of the cycle.

Execution

Initiation and planning are necessary for efficacious execution of any project. Generally speaking, basic project management and lean are in alignment with how a project should be deployed. The use of a project plan using a work breakdown structure (WBS) and establishing metrics are good examples. What lean offers that is not typically addressed in project management methodologies is the mistake-proofing aspect. The strategy used to ensure the success of the project often involves placing controls and detection measures within the project plan.

Visual feedback systems, i.e., Andon, may encourage quicker execution. Creating continuous flow eliminates waste and speeds the process in many projects.

Level scheduling, i.e., heijunka, may be appropriate.

In this phase, policy deployment, i.e., Hoshin Kanri, may help ensure that progress toward the strategic goals is consistent.

Monitoring and Controlling

The monitoring and controlling process oversees all the tasks and metrics necessary to ensure that the approved and authorized project is within scope, on time, and on budget so that the project proceeds with minimal risk. Lean promotes more people interaction than typical project management. Project management models often rely more heavily on Gantt and other charts to track progress. Concentrating a little more on the people aspects will increase team accountability.

Closing

The purpose of the closing phase in the PMLC is to confirm completion of project deliverables to the satisfaction of the project sponsor, and to communicate final project disposition and status to all participants and stakeholders. The concept of standardized work is often useful during this phase. This is where documented procedures capture best practices. If standardized work has been created, it may be used to accelerate the closing process.

The advantage of lean project management is it incorporates stronger planning tools and various aspects of mistake proofing not classically addressed in basic project management theory. The journey begins with examining the PMLC through a lean perspective. Lean project management focuses on making projects better, faster, and more cost effective by eliminating waste and unnecessary activities.

About the Author

Terra Vanzant-Stern, Ph.D., PMP, SPHR/GPHR is a Six Sigma Master Black Belt for SSD Global Solutions. She is the author of *HR Concepts for Project Managers*, *Lean Six Sigma: Practical Bodies of Knowledge* and most recently *Lean Six Sigma: International Standards and Global Guidelines*. *Lean Project Management: A Guide to Making Projects Better, Faster and More Cost-Effective* will be published May 1, 2014. Stern currently serves as the chair-elect for ASQ Lean Enterprise Division.

The Lean Handbook

A Guide to the Bronze Certification Body of Knowledge

Anthony Manos and Chad Vincent,
editors

This handbook's intention is to gather into a single reference the information related to the joint lean certification program of SME, AME, The Shingo Prize, and ASQ. This book will enhance your understanding of the certification's Body of Knowledge (BoK) as a whole and give you a more holistic look at lean.

This comprehensive handbook covers all the topics included in the BoK: cultural enablers, continuous process improvement, consistent lean enterprise culture, and business results. Written by a team of lean experts with years of experience in the field, it will be indispensable to anyone interested in implementing and sustaining a lean initiative. The book is written, by design, at the Bronze Level for certification knowledge. This means that the weightings used in the lean BoK for the Bronze Certification were considered for the depth and breadth of material considered for each rubric. By addressing the lean BoK at the Bronze Level, this book provides a basic understanding of the lean principles, systems, and tools at a tactical level to drive improvements with measureable results.

Material from several lean practitioners with differing backgrounds and experience has been gathered to create this handbook, which serves as an ideal starting point for practitioners who want both a holistic view of lean in general and also specifically the BoK of this groundbreaking joint certification program.

Learning From the Experience of ... Jim Bowie

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 Jim Bowie (aka "Buckaroo Banzai"), who is a strategic performance improvement expert. He has more than 20 years of experience leading improvement efforts in diverse environments and industries around the world. Bowie is a former U.S. Army Infantry Officer and an Operation Iraqi Freedom veteran, a consultant, author of Lean Acres, and professional speaker. He has numerous certifications and was selected to serve as a member of the board of examiners for the Malcolm Baldrige National Quality Award.

How did you get started in lean transformation?

When I really thought about this question, I realized that I started on this path when I was very young—with my first job. I was raised in a farm town just outside (Washington) D.C. in Maryland where I quickly realized that farmers do not do anything wasteful more than once. Time is very real to them; the sun is only up for so many hours each day. Efficiency is the theme of their lives, and if you tamper with their best practices, they don't hesitate to let you know their mind. They were great mentors to me, and I still try to get back to my hometown as often as possible. It serves as a mental monument for me, a reminder of simpler and better times.

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

The importance of the dollar signs when communicating with senior leadership. Lean practitioners sometimes forget to focus on quantitative and financial goals. We work toward "improved morale" and satisfaction indices that may prove to be beneficial, but the "so what?" must always relate the effort back to capital. It's the "fluffy" goals that cause problems and destroy programs. We must begin translating any benefits into dollars up front. What costs will be saved, and more importantly, what new revenue will be generated? The customer experience and the corresponding voice must direct any Lean Six Sigma program, but the "why" and the "so what" must be related to corresponding financial values to give substance to the voice of the business as well.

What made you think of linking Eastern philosophy and lean for the Lean Six Sigma samurai?

It first started while I was researching and comparing different certification programs several years ago; I began looking into the history of the belt system (white/green/black) and the progressive promotion process. Advancing in rank required experience that was cultivated through battle over time—if the candidate survived. Over time and with experience, the white belt of the novice warrior would become stained "green" with dirt, sweat, and blood. As exposure to conflict continued, the color of the belt would become (stained) "black." Experience with weapons and techniques, exposure to challenging and at times dangerous situations, and deliberate meditation on victories and failures is required to live the life of a worthy and honorable samurai.

As I continued researching, I discovered further direct parallels between the code of the samurai (bushido) and the critical (and often missing) aspects of successful Lean Six Sigma practitioners and deployments. Once again, I found that some of the most dynamic innovations come from outside the industry, and the revolutionary transformations we often

cont. on p. 11

Learning From the Experience of ... Jim Bowie cont. from p. 10

see are not new in nature, but are new in application. What we need to do as leaders and practitioners is instill the discipline and the philosophical and spiritual vigor into the nature of what we do to infuse vitality into a waning way of life (quality professionals).

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

Lean is doing more for your customers and increasing revenue while decreasing costs. I prefer to state it this way because CEOs, CFOs, COOs, the entire C-suite deals with dollars. Lean should always be thought of with customers first, revenue second, and costs third. Customers should be shaping everything we do and revenue has no upper limitation. Decreasing costs is tertiary because it has a very real ceiling—that being zero. Executives hear lean and immediately think about decreasing costs, not how it will affect the customer and generate revenue. Let's wake them up to the game-changing capability we bring.

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

We're there to cut heads—to do time and motion studies. Lean is not needed to reduce headcount; this is an administration and executive function. Unfortunately we are often called on to restore order to the world after a personnel reduction, when in fact a true lean effort should have been used to optimize the existing processes, freeing up additional capacity to focus on customer and revenue growth. Lean should be used to repurpose personnel, not eliminate them. When practitioners allow lean to be used to purely reduce headcount, they are slandering our practice and destroying any momentum we have gained as a community.

And within the lean community?

The focus on cost savings instead of revenue generation—waste should be reduced in order to allow growth. I feel that in five to six years, we will look back at the current philosophy of a primary focus on cost savings in a manner that is similar to the way we look back at time and motion studies today. "Slightly antiquated" might be the descriptor. A lean practitioner should really focus most of their efforts on increasing revenue. Let's figure out how to get to that money faster; creating growth with minimized cost is a highly desired skill. But we will have to go into that nether of art and science called sales and marketing. Many organizations are afraid to tinker with these departments and processes for fear that they will interrupt some magical force and shut down the entire movement. We must remember that anything that can be done can be analyzed as a process and ultimately improved, including sales and marketing.

When will your book be out and what is it called?

I am aiming for my new book to be out this summer or fall; the current working title is *The Way of the Lean Six Sigma Samurai®: the Spirit, the Sword and the Statistics*. The focus is on the philosophy, the guiding principles of a Lean Six Sigma Samurai® and the "12 Deadly Weapons" they should focus on mastering. The book will concentrate on the spirit as well as the methodology. I want this book to usher in the next great generation of Lean Six Sigma practitioners.

I would like to, once again, thank Jim Bowie for providing me 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 in the lean, improvement, and quality fields helping to transform companies. He is currently the director of process improvement at Goodwill Industries of Southeastern Wisconsin in Milwaukee, WI.

LED Webinar

True North in Service With Hoshin Kanri

May 14, 2014

Strategy deployment (Hoshin Kanri) when applied in service industries is the most impactful tool to effectively distill true north from the organization's mission to drive both business and Lean Six Sigma activities. The power of strategy deployment provides clarity of direction and purpose throughout the entire organization, ensuring improvement activities are in alignment with the organization's breakthrough objectives. This approach provides complete clarity for how best to apply Lean Six Sigma tools and approaches (both kaizen and DMAIC). This session will present how an international emissions testing company leveraged strategy deployment to align its Lean Six Sigma activities with its mission and breakthrough objectives. It will show how strategy deployment helped cascade the breakthrough goals and objectives throughout the organization and led to complete clarity of constancy of purpose.

Presenter

Chad Smith

If you have ideas for webinar topics, or are interested in presenting a webinar, please contact Chris Hayes at: chayes@getimpacts.com.



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 | May 2014 | Volume 13, Issue 2

UPCOMING WEBINARS

| Date | Name | Topic |
|---------------------------|--------------|---|
| May 14 | Chad Smith | True North in Service With Hoshin Kanri |
| June 11 | Cedro Toro | Root Cause Analysis, Fishbones, and Guts |
| July 9 | Beth Reid | Where's My Sensei? |
| August 8/ September 10 | Chad Vincent | TPM: More Than Painting and Labeling Machines |

COME SEE US AT WCQI!

Several members of the ASQ Lean Enterprise Division are presenting at this year's World Conference on Quality and Improvement, and LED will have a booth in the exhibit hall. Stop by our booth at the conference to say hello, and get information on upcoming division happenings.

NEXT ISSUE

- T³ – Suggestion Systems
- Identifying Waste Through VSM
- Where Is My Sensei?
- Lean Design in Genome Research
- WCQI Recap



Please consider the environment.

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