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LEAN THOUGHTS

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Lean and Six Sigma

An excerpt from an article written by Bill Lareau from the Kaufman Consulting Group

The basic assumption of lean is that no process is devoid of waste. Lean operates by installing and applying into each work group in the organization the methods and approaches shown in columns three, four and five of Figure 1. Leads, supervisors and managers conduct the implementation and maintenance of lean. Almost always, these employees need coaching and assistance in overcoming resistance to change, project management, lean principles and the various tools in order to realize benefits in a timely manner. The design of a lean initiative is generally directed by a cross-functional Executive Steering Committee (ESC), which is also coached by a lean expert.

Six sigma operates on an expert model. The often referred to *black belts* of six sigma are individuals who have been trained on the six sigma tools. The term *black belt* was borrowed from martial arts where, depending upon the tenets of the school of study, students earn belts of various colors as they increase their skills. The colors, in ascending order of skill from novice to teacher, typically run from white to yellow to brown to green to blue to red to black to 1st degree, 2nd degree and upward black belts.

Black belts are the general practitioners of six sigma. They are trained in both the theory and practice of using statistical thinking, tools and problem solving methods to fix a process or problem. Six sigma training typically involves two weeks of classroom training separated by a number of in the field weeks during which the trainee works on an actual six sigma project. If the teacher reviews the project as successful, the student is awarded a black belt. Most black belts are awarded by organizations that have developed their own internal programs, so there is a broad range of black belt skills and experience depending upon the rigor of the training.

Which Approach Contributes the Most?

Its difficult to determine which approach, lean or six sigma, works best. These days, almost every organization is employing a host of methods, approaches and philosophies in a frenzied scramble to be competitive. Most organizations are doing some of both, although many efforts involving six sigma tools and lean methods are functioning in a non-focused, poorly planned manner. It would be hard to find an organization that is not using some structured problem solving approaches here or there, along with some SPC. And even the most backward organization has been forced by customers to begin to implement some lean techniques

One of the best known six sigma efforts was conducted at General Electric (GE). While six sigma gets most of the publicly stated credit for GEs success, GE was aggressively pursuing lean techniques during the same time period. It would be impossible to separate the contributions of each into discrete cause and effect categories, but six sigma is afforded the glory in most organizations. This is due in part to a variety of reasons, including:

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Where "Lean Thoughts" Become Reality

1. It is easy to describe what a black belt does.
2. Black belt status and the work performed can be associated with specific individuals.
3. Discrete projects can be trumpeted as victorious examples of the results six sigma can produce.

Aside from the difficulty of deciding what to call it, lean (or pull, or kaizen) is difficult to explain. The tools and methods displayed in Figure 1 are not easy to describe, particularly to someone lacking basic shop floor terminology. Further, lean has no heroes that can be clearly identified (since everybody helps), and its many victories are often unglamorous and small. Yet, every world-class organization is practicing kaizen and elements of lean while many have not trained a single black belt.

What Do Lean and Six Sigma Have in Common?

Figure 3 presents a conceptual illustration of the overlap of lean and six sigma tools and methods. The lean and six sigma toolboxes have many common elements; however, since these tools are applied toward the achievement of different objectives, they operate differently.

For example, in the six sigma arena, a problem is pursued as a discrete effort by a black or yellow belt (based on complexity). Root causes are formally determined, metrics developed, process capability assessed, and various solutions tested. When the appropriate solution is found, it is installed.

In the lean school of study, the problem is typically an identified waste that is noticed on routine measurements that are conducted in each work group on a periodic basis. Since all waste is a root cause of some loss, it is attacked automatically. By employing workplace management tools and just-in-time techniques, the waste is reduced. Lean has the benefit of a number of standardized techniques that can be applied within work groups. No expert is needed.

Which approach is best? It depends on what the specific problem is. In fact, both lean and six sigma are needed because they do different things. One cant afford to let big, dangerous process problems and quality issues go unattended until after the installation of lean systems. Conversely, one cannot afford to wait to implement lean techniques if the rest of the market segment is already moving in that direction. Six sigma cannot produce the required results in inventory reduction and cycle time on a sufficiently broad basis fast enough.

Edited from an article written by Bill Lareau from the Kaufman Consulting Group.

Figure 3 Lean and Six Sigma Issues, Tools and Approaches

Issue, Tool, Approach	Lean	Six Sigma
Engages work groups as teams	YES	-
Defines key metrics for every work group	YES	-
Provides daily metrics feedback to all groups	YES	
Forces participation of supervisors/leads each day	YES	
Focuses on significant critical issues	YES**	YES
Employs structured problem solving approaches	YES	YES
Focuses on hundreds of micro-processes each day	YES	-
Establishes standard work (using TPS work sheets)	YES	-
Attacks movement, waiting and walking waste	YES	-
Attacks work-in-process (WIP) inventory	YES	-
Attacks raw and finished goods inventory	YES	-
Attacks work imbalances (leveling)	YES	-
Focuses on cycle time reductions	YES	-
Focuses on specific, individual defects	YES	-
Drives adjacent work groups/shifts to communicate	YES	-
Attacks changeover times	YES	-
Develops error proofing opportunities	YES	-
Uses kaizen blitzes	YES	-
Focuses on preventive maintenance issues	YES	-
Focuses on good housekeeping	YES	-
Focuses on developing a visual workplace	YES	-
Focuses on workplace organization issues (e.g., layout)	YES	-
Focuses on improvement planning in each work group	YES	-
Uses As Is process flow diagramming	YES	YES
Uses To Be process flow design	YES	YES
Employs Kaizen Action Sheet methodology	YES	-
Employs appropriate **KCG 20 Keys**[SM]	YES	-
Requires metrics development in each work group	YES	-
Employs benchmarking	YES*	YES
Standardizes and institutionalizes changes	YES	YES
Focuses on key safety issues	YES	-
Pursues large scale reengineering type innovations	YES**	YES
Requires concrete behavior changes in employees	YES	-
Requires concrete supervisory behavior changes	YES	-
Calculates process capability	-	YES
Uses statistical process control charts	-	YES
Uses design of experiments	-	YES
Calculates defects-per-million-opportunities (DPMO)	-	YES

Consortium Event Schedule

Tour **W**orkshop **C**onference

January	February	March	April	May	June
T **Wednesday 25** **Eaton Electrical,** contact Joe Fisher, JoeRFisher@eaton.com	**T** **Wednesday 15,** **CFN Precision,** contact Barry Wood, bwood@cfn-inc.com **W** **Date & location TBA** **Your own "STEP Diagnostic" to create Vision, Mission and Direction** Contact Richard Kunst Richard.kunst@la-z-boy.com	**T** **Wednesday 22,** **Nestle Waters,** contact Mariela Castano mcastano@perriergroup.com	**T** **Wednesday 19,** **CTS Corp.,** contact Bob Garces, Bob.Garces@ac.ctscorp.com **Consortium Shareshowcase** **Saturday 29** **Kraft Oakville.** Contact Cindy Grolleman cindy.grolleman@stackpole.com	**T** **Wednesday 17,** **Stackpole CSD,** contact Don Barber Don.Barber@stackpole.ca **W** **Date & location TBA** **"Compartmentalize the Noise"** *** Daily Report-outs** *** Standard work for Leaders** Contact Richard Kunst Richard.kunst@la-z-boy.com	**T** **Wednesday 21,** **Morrison LaMothe,** contact Tony Vita tvita@morrisonlamthe.com **C** **AME Regional Conference** **Mon 12 to Thurs 15** K-W Ontario Contact www.ame.org
July	**August**	**September**	**October**	**November**	**December**
	W **Date & location TBA** **"Establish Anchors"** *** VSWI … Visual Work Instructions** *** TPM … Total Productive Maintenance** Contact Richard Kunst Richard.kunst@la-z-boy.com	**T** **Wednesday 20,** **Kraft Foods,** contact Hanif Jivraj hjivraj@Kraft.com	**T** **Wednesday 11,** **Stackpole PMC,** contact Cindy Grolleman cindy.grolleman@stackpole.com **C** **AME National Conference** **Mon 16 to Friday 20** Dallas, Texas Contact www.ame.org	**T** **Wednesday 15,** **Messier-Dowty,** contact Richard Evans Richard.Evans@Messier-dowty.on.ca **W** **Date & location TBA** **Your own "Get Organized"** *** 5S+1** Contact Richard Kunst Richard.kunst@la-z-boy.com	