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Lean and Continuous Improvement

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Introduction
Lean and Continuous Improvement are distinct performance improvement strategies. Each has its own objective and methodology and is highly inter-woven. Lean Manufacturing uses the strategy of Kaikaku and Continuous Improvement takes the approach of Kaizen.

The Cow Path
The cow path is a metaphor describing business improvement performance. I would like you to imagine a cow path that the cow follows every day to go from the pasture to the barn. Over time the cow path develops ruts, boulders fall on the path and limbs fall across the path. To avoid the obstacles, the cow goes around the obstacles and the cow path now meanders. Over more time the cow path meanders more and more and becomes very convoluted.

One day farmer John decides to remove any of the obstacles that are on the existing cow path. The cow goes through the cow path that has no ruts, no branches or boulders and thinks that is pretty good.

Sometimes later farmer John decides to pave the cow path and the cow thinks that this is even better.

The next farm over, the farmer Bob has a similar situation. However, farmer Bob takes a different approach. Farmer Bob eliminates the meandering and straightens out the cow path so that that cow does not have to travel the same distance. As obstacles creep onto the straightened cow path, farmer Bob removes them as they occur.

"Time is Money, Speed is Profit and Time is Today's Currency"
Speed Based Manufacturing (SBM) represents the latest manufacturing "thrust" for leading worldwide organizations. Speed is a continuous improvement philosophy focused on time reduction. Its objective is to perform the basic business functions "better", not necessarily just "faster". Speed drives fundamental changes to how any and all activities of the manufacturing enterprise are performed. It does not mean simply performing the same processes quicker.

In today's world, speed is a distinctive competitive advantage. SBM uses "cycle time" to view, define, analyze, and improve the business processes. SBM focuses on time for an organization to "cycle through" all the required activities to proved a product or service – that is the value chain.

There are two types of cycle time: 1) Development Cycle, concept to first production unit, and 2) Delivery Cycle, customer order to Customer receipt and satisfaction.
Speed drives at least three strategic benefits:
1. Time to Market – products are developed quicker in response to Customer requirements
2. Total Product Cost – making products quicker requires less overhead throughout the organization
3. Return on Assets – increasing volume velocity generates more return for given level of capital

Lean Manufacturing vs. Continuous Improvement
Going back to the cow path, Farmer John used a Kaizen based approach, where he worked on continuous improvement projects. His Kaizen projects did have an impact on the efficiency of the cow going through the cow path. Farmer Bob was also interested in improving performance but took a lean manufacturing approach to straighten the cow path, using Kaikaku. Kaikaku is Japanese that is roughly translated to mean a revolution, explosive change, radical improvement. Straightening the cow path is a transformational change, while removing the obstacles on the cow path are small incremental improvements. Both are necessary and sequence is all important.

> *"Kaizen as a business practice emerged in a pursuit of perfection of business processes. And this pursuit of perfection was what was contemplated only after an enterprise first practiced kaikaku, the radical redesign and recreation of the methods of executing business and production. Kaikaku or radical improvement was the source of the breakthroughs in performance and accelerated growth. Kaizen is the powerful follow-up drive to perfect the processes and methods and to continue to adapt and be relevant."* Rick Sidorowicz

The first step is kaikaku - the radical design.
The next step is kaizen - the pursuit of perfection.

Notice that you don't hear much about kaikaku in business today? You likely won't - simply because it's a very dangerous notion. It attacks the very heart of organizations - the *muda*, the waste, the monuments, the downtime, the scrap, and the inefficiency.

Lean and Kaikaku

In Lean circles we use Kaikaku to define rapid fundamental changes that help Kaizen and continuous improvement really take root and effect the bottom line. Often the way we do business must radically change in order to get dramatic improvement, and nothing helps that more than the whole leadership team believing in the change and having a clear vision as to where that will lead the organization. Within the Toyota organization Kaikaku is performed every seven years.

> *"Companies utilizing kaizen exclusively will recognize only 25% of the improvement potential possible. This is so because altering product and process designs are typically off limits. Kaikaku targets the remaining 75% of the improvement opportunity by going beyond these traditional limitations. The Kaikaku process leverages the vast creative capability of the team members and preemptively strips the waste from product designs and manufacturing process designs,"* Jim Vatalaro, Management Consultant/Project Manager, Productivity, Inc.

Kaikaku is a strategy used to conceptualize and develop waste-free product designs and waste-free manufacturing process designs before the first production part is ever produced. The outcome is breakthrough performance improvement as measured by quality, speed/lead-time, value added activities and cost.

Case Studies

I would like to refer to two case studies: 1) Machine Shop in California, and 2) Aircraft Parts Manufacturer in British Columbia. In both cases radical improvements were achieved. (See Table 1.)

Table 1 – Case Studies

	Machine Shop	**Air Craft Manufacturer**
Lead Time	7.2 weeks to 22 minutes	108 days to 8 days
Inventory Levels	40% of sales to 5% of sales	20% of sales to 10% of sales
Floor Space	Reduced floor space by 35% and consolidated buildings	Reduced floor space by 25%, consolidated buildings and sold airplane hangar for $3,000,000 profit
Manpower	Reduced manpower by 8%	Reduced manpower by 12%
Set Up Times	Mills and Lathes from 57 and 90+ minutes to 6 and 7 minutes respectively	Mills and Lathes from 45 and 120 minutes to 7.5 and 7 minutes respectively
Distance Travel	909 feet to 45 feet	2900 feet to 457 feet
Production Costs	38% Reduction	33% Reduction
Supplier Lead Time Reduction	6 weeks to JIT	4-8 weeks to < 1 week
Scrap Costs	5% to < 0.5% of sales	7% to 2% of sales

Conclusion

The definition of insanity is doing things in the same way, expecting to get different results. If we truly want to achieve significantly improved business results, our approach must be different. We must be willing to be *"process-driven"*. The process to bring about significant improved business results is different than following the Kaizen model of identifying projects and, removing obstacles and barriers from the cow path. The Kaikaku Strategy requires a radical new approach, which means straightening the cow path. After using the Kaikaku Strategy to straighten the cow path, use Kaizen to remove

any barriers that may exist or prevent you from executing your day-to-day operations in a waste free environment. The Kaikaku Strategy poses an interesting enigma in that it requires true visionary leadership that is willing to question it self to the very core and yet its approach is very straight forward.