**Lean Overview**

As stated in the previous article on Reliability in this series, lean is defined as “the right thing in the right place at the right time” or as the “reduction of variability”. Reliability of process outcomes is the goal.

Unless your organization is on the brink of failure, i.e., going bankrupt, lean should be used as a mechanism to grow the organization profitably, not to cut labor, find the cheapest suppliers, etc. Using lean methods to reduce headcount hurts morale and ultimately hurts throughput and culture.

**Traditional Lean – The Seven Wastes**

Most people know these, or if not, they are readily available on the internet. The seven are:

1. Moves/transportation – unnecessary movement of inventory, like from one machine to the next step in the process, but the next step is located too far away
2. Wait time – inventory in storage, labor waiting for inventory to show up, etc.
3. Over production – making more than what is needed within a defined time frame. This time frame varies on the amount of cash tied up, space needed, etc.
4. Unnecessary processing steps – e.g., needing to cull out discolored materials before they are put into production
5. Excess inventory – demand should drive inventory – work the supply chain to find suppliers that want to work with you – you are the customer – how often do you dictate terms to your customers?
6. Excess motion – looking for things, stock materials placed too far from the printer or die cutter, etc.
7. Quality failures – establish methods that prevent these rather than trying to find them after the failure occurs

**The Four that Matter the Most**

As discussed in a previous article, one waste in lean (#7 above) is failure of product to meet the required level of quality. I consider that to be a business survival factor, which is much more significant than a “waste”. If you print junk, customers will go somewhere else, especially if your printed materials ruin their image or cost them customers.

The remaining three wastes that are important are waiting, move time and finally, over-production. All three apply to information flows as well as product flows.

**Inter-relationship between Wait, Move and Overproduction**

These three are closely related. If you overproduce, you need to move more things into production than you needed to, then you need to move the excess into storage or out of the way.

**Causes of Overproduction**

One of the most frequent causes of overproduction is that fact that some of the items you need to make might get ordered by your customer every month. So, a six-month order quantity is combined into one production run. Typically, this is to save on set-up times. So instead of reducing set up times, six times the required quantity of product is run. This wastes raw materials, may cause the need to order additional materials to cover that waste, reduces machine time to run other products that are also needed, can cause late deliveries, expediting, etc. Overproduction also causes additional handling and storage. Limiting the media used to print the product is a simple way to stop over production. Also, explaining to the workers the waste that is involved in over production should be part of the program to eliminate this waste.

**Wait Time**

Product sitting on shelves is a clear example of this. Or on pallets in aisles because you don’t have the racking space to store things. Worse yet, is in trailers you are renting or off-site storage. Take a look at your facility and determine what percentage is used for storage. Most places have more square footage used for storage than they do for production. If you have a $20,000,000 business in a 100,000-sf facility, and half is used for storage, the production space is worth $400 per square foot in revenue. If the sales are there (if not, get them) increase the productive space by 20% (10,000-sf), all else being equal, this equates to an additional $4,000,000 in revenue without adding any significant facilities costs. Wait time exists with materials (get those volume discounts), components, work-in-process and excess production of finished product. Determine the root cause of the wait time and fix it.

**Moves**

Moving product between facilities, across the plant, etc. is also a waste. One large printer I worked with was very proud of its extensive highway system in its building, complete with stop signs, cross walks, arms like at railroad crossings, etc. They had become experts at something they should not be doing. Moves generally result from bad layouts and over production. Wait time frequently occurs after a move. Do a spaghetti diagram (look this up on the web) for your most common product types and see the moves involved. Include the moves from a work area to storage, from storage to the work area, etc. This is a good way to highlight the way the business operates and to determine how much effort gets placed into moving product around the facility.

**Conclusion**

Simply focus on these three main wastes and you will get 85%-90% of the value from a lean effort.

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**About the Author:** Bob Krausert is the owner of STRATE***X***, a Twin Cities based firm that works nationwide. Bob is the author of the book, ***Extreme Lean***, published in 2018. Bob has worked with over 60 printing companies, mostly mid-sized companies, but also with larger companies like Jostens and RR Donnelly. During his career, Bob has trained over 12,000 people at both public and private events. Bob has been working with PIM since 2010, periodically providing educational seminars for its members. Bob can be reached at [stratexlean20@gmail.com](mailto:stratexlean20@gmail.com) or by phone at 612-743-8706. If you would like to have a specific question or topic covered in one of the monthly articles, feel free to make the suggestion!