Tool Application for Maximum Impact

Max R. Davis

The Boulder Group integrates the application of tools such as Theory of Constraints, Cycle Time, Lean, and Six Sigma to optimize the result and impact of process improvement programs. These tools each have strengths in specific environments in addressing performance gaps and optimizing processes. Let's explore the basics of each of these tools and where its application is best suited.

Theory of Constraints

Theory of Constraints is the invention of Dr Eliyahu Goldratt, an Israeli physicist, educator, and management specialist. In most management situations the real leverage lies in understanding cause and effect dependency and variation. TOC is a business philosophy which seeks to strive towards the global objective, or goal, of a system through an understanding of the underlying cause and effect dependency and variation of the system in question. In other words, what is constraining the system or process to suboptimal performance in any desired parameter…cost, response (cycle time), quality, or on time delivery. Of Course, we do have the intuition to know that local optimization doesn't work well for the overall system good so the approach of The Boulder Group is to form the global perspective to identify the process constraints (barriers, obstacles) that inhibit the bottom line results. Then, by characterization of the impact of removal of the constraint, prioritization and management of removal actions is initiated for maximum impact and optimal resource investment.

Cycle Time

Cycle time has been used traditionally as a driver metric in manufacturing. The value of this metric is still substantial, and as supply chain relationships become more important, a whole new view of how this metric can be applied to ensure that precision is improved and waste is analyzed and removed from the supply chain. Whether you are a 3PL, manufacturer, wholesaler, distributor, retailer, importer, exporter, supplier, customer, logistics service provider or other type of firm that participates in supply chain management, a major key to success is time compression. Increasing velocity, rapid response to changing market conditions, minimizing time, minimizing risk and inventory investment, and sustaining that velocity are the reasons for collaboration, integration, and visibility across the chain.

There are other cycle time metrics that apply more broadly across the company - on-time customer order delivery, manufacture to order complete, cash conversion cycle and days sales outstanding. A good cycle time metric Is the measure of the length of time for a process to complete from start to end, especially one that crosses the organization.

However, it has been less prevalent to apply this metric as rigorously to non-manufacturing processes. When applied to processes such administrative, marketing, sales, and design it is typically discovered that there is several-fold more opportunities to reduce time and as importantly, reduce the rework and waste that is may have become institutionalized. Built in rework, unclear specification resulting in first pass yield degradation, "paper" queues, batching at decision points, silo management between organizations, can all contribute significant sub-optimal performance and therefore poor results in key areas such as market response, time to market, order to cash, and sales cycle times. The areas are fertile for utilization of cycle time as a driver to expose and analyze the waste and potential to optimize business capture and competitiveness.

Lean

Lean manufacturing has its roots going back to the Toyota Production System, originally called "Just in Time Production," and builds on the approach created by the founder of Toyota, Sakichi Toyoda, his son Kiichiro Toyoda, and the engineer Taiichi Ohno. Taiichi Ohno, Shigeo Shingo and Eiji Toyoda developed the system between 1948 and 1975.

Lean is most often thought of as a method to address the elimination of waste in manufacturing improvement and has indeed been applied with great success. As with most improvement programs, continued diligence toward the

continuous improvement activities are necessary to counter the tendency for waste and insufficient to creep back into processes. The Boulder Group has successfully implemented multiple Lean programs along with the management governance to integrate the strategic outcomes into the improvement results in an environment that can ensure lasting results.

One of the basic tenets of the supply chain, as it has been defined. is that it must become a “pull system”. Lean and the earlier Just in Time concepts all rely upon a pull system to streamline production environments and eliminate inventory and waste even extending out to suppliers. Therefore, Lean offers a set of methods and techniques that apply well to supply chain management. The challenge is to align and integrate the efforts strategically within the enterprise to the greatest benefit at the bottom line.

There are some particular terminologies used in the Lean improvement efforts. **Kaizen** (Japanese for "improvement" or "change for the better") is used to describe the philosophy of continuous improvement implied in the Lean methodology. In modern usage, a focused kaizen that is designed to address a particular issue over the course of a few days to a week is referred to as a "kaizen blitz" or "kaizen event". The communication and focus that come from these types of events can be very powerful in addressing improvements in a given process or area. These are limited in scope, and issues that arise from them are typically used in later blitzes.

As with most sound concepts, Lean has also been applied to non-manufacturing organizations with great success as well. Waste elimination in metrics such as rework, cycle time, and First Pass Yield have brought significant bottom line results and enabled far more responsive processes involved in areas such as Design and Development, Sales, and Marketing. The Boulder Group has successful implementation experience in all of these disciplines.

Six Sigma

Originally developed by Motorola, USA in 1981, Six Sigma has become a significant business management strategy. It enjoys widespread application in many sectors of industry and government, although its application is not without controversy.

Seeking to improve the quality of process outputs by identifying and removing the causes of defects (errors) and minimizing variability in manufacturing and business processes is the goal of Six Sigma. Since this is hardly a controversial goal, where can companies go wrong in its application? The answer lies in the proper application in an appropriate management structure.

The maturity of a manufacturing process can be described by a sigma rating indicating its yield, or the percentage of defect-free products it creates. A six-sigma process is one in which 99.99966% of the products manufactured are free of defects, compared to a one-sigma process in which only 31% are free of defects. Motorola set a goal of "six sigmas" for all of its manufacturing operations and this goal became a byword for the management and engineering practices used to achieve it.

Six Sigma uses a set of quality management methods, including statistical methods, and creates a special infrastructure of people within the organization ("Black Belts", "Green Belts", etc.) who are experts in these methods. Each Six Sigma project carried out within an organization follows a defined sequence of steps and has quantified targets. These targets can be financial (cost reduction or profit increase) or whatever is critical to the customer of that process (cycle time, safety, delivery, etc.). The basic steps in the process are defined to as DMAIC representing the following:

1. **Define**
2. **Measure**
3. **Analyze**
4. **Improve**
5. **Control**

The training for an organization to become proficient (Black Belt/Green Belt) is resource intensive and requires execution of projects generally with statistically significant data on process performance to effectively apply these methods. The statistical element of Six Sigma is data intensive, and is a powerful and rigorous point solution best used to optimize a single sub process step.

The Boulder Group recognizes the power of Six Sigma and the tools and training which are necessary to apply the methods successfully. The application of these methods

within a sound management governance structure so that these improvement projects are prioritized, integrated, and aligned with the Strategic Vision of the enterprise is the approach we follow.

If you have a Six Sigma program but feel that the results have been less than expected, The Boulder Group can assist you in achieving the proper strategic alignment and ensuring that improvement tools available for your teams are the most effective.

Summary

All of these tools have great merits. As with many concepts, the usage of the methods and skills can be combined for greatest and most rapid result improvement. Lean /Six Sigma is a significant example of this. And as is typically discovered, the most rigorous of the tools with greatest skill sets required to apply also tend to be most useful in very technical process situations. Six Sigma is this type of tool.

The choice of the right tool represents a significant investment for your organization. Applying the tool within a framework of management and governance that ensures strategic alignment is vital to the ultimate impact to your bottom line. If you find your enterprise unsure of a selection process or disappointed in the results attained to date, The Boulder Group will assist you in whatever stage in selection or implementation you find your organization and help you drive results to the bottom line.

Max R. Davis is a Senior Partner with The Boulder Group

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