

Six Sigma vs. Performance Solutions by Milliken

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Continuous improvement plays a huge role in managing processes and developing best practices. It covers a wide range of methods and is practiced by companies all over the world, both in manufacturing and service sectors. The two types or methodologies that will be examined here are Six Sigma and, perhaps the less well known, Performance Solutions by Milliken. Especially in today's environment of thin profit margins on end products and physical assets, traditional manufacturers have evolved into service organizations and must remain competitive. This paper focuses on these methodologies, and on the dual use of them, by a world-class manufacturer.

INTRODUCTION

Operations Management focuses on carefully managing the processes to produce and distribute products and services (McNamara, 2014). Continuous improvement plays a huge role in managing the process and developing best practices. Best practices are commercial or professional procedures that are accepted or prescribed as being correct or most effective (Oxford Dictionaries, 2015). Continuous improvement covers a wide range of methods and is practiced by companies all over the world, both in manufacturing and service sectors. The two types or methodologies that will be examined here are Six Sigma and, the perhaps less well known, Performance Solutions by Milliken. While one may associate these methodologies primarily from a manufacturing perspective, the importance of service after the sale cannot be underestimated. Especially in today's environment of thin profit margins on end products and physical assets, traditional manufacturers have evolved into service organizations and must stay ahead in their game.

The credibility of these methodologies lay in the performance of the companies that are currently involved with them. General Electric, Motorola, Kraft General Foods as well as Ford Motor Company, use Six Sigma. On the other hand, Goodyear, Sonoco Poland and RockTenn use the Performance Solutions by Milliken (Milliken & Company, 2012). Several of these companies are Fortune 500 companies. All of these companies are witnessing success, by looking into Six Sigma and Milliken's Performance Solutions we are looking at the common denominator between successful companies in

different industries. Organizations exist that use these two methodologies together. One such example is RockTenn, a leading company in the consumer packaging industry. The two methodologies can also be contrasted to view their differences and how the companies that practice them can achieve different results. It is interesting to see how these two methodologies are used together to achieve continuous improvement.

BACKGROUND

First, Six Sigma is mainly used to eliminate defects in a company's products or services. The customer and their specifications determine defects. Here the Six Sigma methodology will be examined. Six Sigma is a procedural approach to improve quality and derives its name from the mathematical expression 6σ which equates to 3.4 defects per million opportunities (Fursule, Bansod, & Fursule, 2012). The Six Sigma approach achieves such a low percentage of defects through their structured DMAIC approach. This acronym stands for the five parts of the approach: Define, Measure, Analyze, Improve and Control.

Define is defining what the customer needs or their specifications. If a customer needs a lightweight product or needs it to perform a specific function then that would fit into the specification. Measure is where analytics are done to measure how a product is currently performing. In a simple way it is looking at a benchmark of where we are now. Analyze is where the practitioners study the process and look at where the causes of the defective product are generated. For example, if a new method of delivery needs to be engineered it would take place in this step. Improve is improving the process to eliminate the source of the nonconformity. This is where the process is modified and the new solution is put into place. After the new solution is put into place, one must monitor the process to ensure that the process has indeed improved. The final step in the DMAIC process is Control. Control is certifying that the improvements remain operational and the process continues to perform at its maximum efficiency.

For product/service design improvement the Six Sigma methodology changes slightly to DMADV. The new "D" stands for Design, which is design a solution or a service to fit a problem. The "V" is for Verify; verifying that the designed solution indeed fixes the problem at hand (Fursule, Bansod, & Fursule, 2012). Now that the methodology is explained we can take a look at the practitioners.

METHODOLOGY

The methodology is performed in a managerial approach or a top down style. This means that the normal practitioner would be a manager or someone who has control over how the process is performed; through training they become a full time leader of Six Sigma projects (American Society for Quality, 2013). There are several different levels of Six Sigma Certification. They form up every level and each have a different role. From basic to increasing leadership these levels are: White Belt, Yellow Belt, Green Belt, Black Belt and Master Black Belt. White belts understand the Six Sigma concept and work on local problem solving teams. Yellow belts participate as team members. Green Belts assist with the analysis for black belt projects but can also lead projects or teams. Black belts lead problem-solving projects. Master black belts can lead projects; however, their main objective is to train and coach Black and Green belt members. The process as a whole starts with a Master Black Belt and involves the participation of other members to lead projects (American Society for Quality, 2013).

LEAN APPROACH

There is another form of Six Sigma that is worth mentioning. The Lean Approach is a tool used to lower waste by eliminating unnecessary steps in the creation of a product so that only steps that directly add value to the product are taken. This can also lower the chance of defects. If a product is created in 5 steps instead of 7 then that is 2 less opportunities that it has to become defective. Both systems have the same goal: to eliminate waste and defects. However, the main difference is the way they identify the

waste (University Alliance, 2015). Six Sigma focuses on quality defects and then alters the process in ways to eliminate the defect. This could lead to an extra step being taken in order to safeguard the quality of the product.

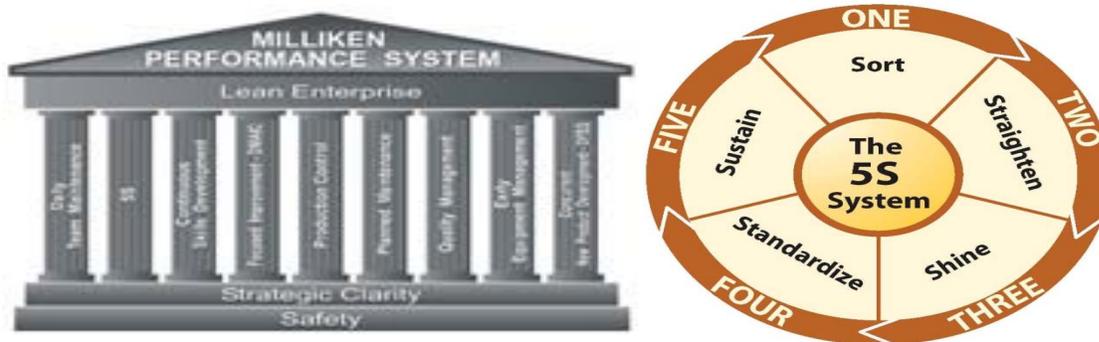
The lean approach, on the other hand, looks to see where the most wasteful step in the process is. If this step to safeguard the quality of the defect costs more time (time = money) than it takes away from the cost of quality, then the lean practitioner would eliminate the step and focus more on where the waste is happening, rather than the defect. These concepts are applied in service environments as well, such as improving the check-in and check-out procedures at a hotel, for example, or eliminating unnecessary steps in fast-food process delivery design. Both Lean and original Six Sigma have their advantages and are useful to companies wanting to improve efficiency and eliminate waste.

BENEFITS

There are many benefits to using Six Sigma. To begin, Six Sigma relies on statistical methods to identify and define defects (Fursule, Bansod, & Fursule, 2012). These methods are always improving and becoming easier to use. As gains are made in the field of statistics it will become easier to identify defects and solve inefficient dilemmas. Also, due to the universality of the Six Sigma methodology, companies that use Six Sigma can work together with their suppliers and/or customers to perfect a process. This is easily seen in manufacturing. If a customer identifies a defect, they can gather the data on it and transfer it to a Green/Black Belt practitioner with their supplier. It creates a seamless startup of a new Six Sigma Project. Through Six Sigma, companies can reduce waste and improve quality.

ANOTHER APPROACH

On the other hand, the Performance Solutions methodology by Milliken has a different approach toward continuous improvement. First of all, it must be understood that Performance Solutions is more of a system than a methodology. The system focuses on achieving operational excellence while at the same time making a company more competitive in the workplace. This is achieved by installing a new management system with a goal to reduce defects, breakdowns, and waste. Their performance system is based on the House of Performance Excellence and can be seen below:



A different team represents each pillar in the house with a pillar leader (manager). Each team has different responsibilities. To illustrate what the Milliken system is trying to accomplish we will look at a few of the teams. The 5S team focuses on the 5Ss as seen above. The 5S team sorts out what raw materials or tools are needed to complete a task. Then, they straighten out the process by eliminating what is not needed. They make the work area clean (shine). They then “standardize” the cleaning and maintenance of the work area by creating checklists and schedules. Lastly, we sustain the process throughout with a commitment to update and ensure the 5S way of life is maintained (American Society for Quality, 2004).

Early Equipment Management relies upon managing and scheduling the current equipment as well as planning for future installs. This team monitors the budgeting, purchasing, installing, setup, and future use of any new equipment. Planned Maintenance or Preventative Maintenance ensures that a proper maintenance schedule is developed and followed. It also streamlines the maintenance process through training and maintenance manuals. The pillar of Quality Management uses a Defect Elimination 10 step process, which includes identifying the most costly defect, and altering the process to eliminate the root cause. As seen in the House of Performance Excellence, safety is the foundation. Milliken places safety first over all other areas of continuous improvement. These are just a few of the pillars and teams that make up Milliken's Performance Solutions Model.

MILLIKEN'S PERFORMANCE SOLUTIONS MODEL

Milliken's Performance Solutions strive for 100% engagement. This means that everyone down to the smallest employees are involved, rather than working from the managerial level down to the workers. The Performance Solutions wants to increase the engagement of the employees so that the system as a whole is sustainable and continuous. There are advantages to this system. First, overall equipment effectiveness is increased. Through utilizing several of the pillars, companies can create a competitive advantage just by taking care of their equipment.

A safe working environment is created through increasing awareness throughout the entire production facility. This increases morale and buy-in within production facilities. When the employees become more involved they generate ideas and become a vital resource to the improvement of the process. This promotes teamwork and concepts of accountability when people take pride and ownership of their job.

Employee development is also a benefit of using the Performance Solutions (Performance Solutions by Milliken, 2012). Through training and development employees grow; these employees, once they get bought in to the system, work harder for the company thereby eliminating defects and waste while increasing productivity. Performance Solutions has many benefits to the company and employees.

WHICH ONE IS BEST?

Comparing these two continuous improvement tactics is as simple as pointing out their similarities; however, deciding which one is best for your company is very subjective. The biggest similarity is that both have an emphasis on quality. Six Sigma is trying to lower waste and the cost of quality. While Six Sigma practitioners are using the DMAIC process in order to minimize defects, the Milliken process is outlined by a 10 step process that plans to eliminate the defect as a whole.

Both Six Sigma and Milliken's Performance Solutions are team based. The Six Sigma teams are project based and after the project is completed seem to dwindle down in size. In contrast, with the Performance Solutions the kick-off team is only the beginning. The success of the Performance Solutions relies on teams expanding and eventually encompassing the entire plant. The internal team frameworks increase the likelihood of sustainability and buy-in. Both, if effective, will produce increased productivity and quality.

It is much easier to contrast these two methodologies now that they have been displayed. The biggest difference is that the Milliken Performance Solutions is striving to be plant-wide, while Six Sigma narrows down to a small team trying to conquer a specific problem quickly and efficiently. Here it seems like Six Sigma would die out after a project is completed, but this is not the case. Six Sigma teams will continue to monitor the process and ensure it does not fall out of control. Also, they will move on to more projects and continue improving on their biggest gaps.

Second, Six Sigma requires statistics and data to be effective, whereas Milliken's Performance Solutions focus more on best practices. Six Sigma can be applied to nearly any aspect of a process: costs in waste, quality and production. The Performance Solutions methodology is applied to every aspect of the process, including waste, quality, production, safety, training, maintenance, and anything else involved in the process.

Possibly the largest difference between the two practices is where the process starts. With Six Sigma the process begins at the management level. The black belt practitioner uses statistics to identify the problem and then gathers a team to eliminate the issue. The Performance Solutions begins with a kick-off where the employees join teams of their own choice. This increases their feeling of belonging to a team. It also is the beginning of what is planned to become 100% participation. Milliken's Performance Solutions claim to outlast Six Sigma through sustaining their methods and teams through the long-term continuous effort.

One of the last greatest differences is that Milliken's Performance Solutions is aided fully by Milliken during its initiation and after a period of time it becomes a stand-alone effort made by the company participating in the program. When an employee becomes a certified Six Sigma Black Belt they can perform projects within the company without any oversight. These two methods of continuous improvement, while having similarities, are far different in how they are started, practiced, and sustained.

DISCUSSION AND CONCLUSIONS

Examining the similarities and differences between these two methodologies begs the question: can they exist together? Indeed, it has been done. RockTenn, a Fortune 500 company, has practiced the Six Sigma methodology for a while now. Recently, to maintain their competitive advantage, they have also incorporated Milliken's Performance Solutions into their continuous improvement model. It will be more apparent how these two methodologies work together in RockTenn once we understand the industry in which they operate.

RockTenn is one of the leading corporations in the paper manufacturing industry. They also have a large presence in the consumer packaging industry. Most of their business comes from Corrugated Packaging and Consumer Packaging (RockTenn Annual Report, 2011). This industry is suitable for continuous improvement. There are several reasons that make this true. With all of the advancements in plastic and companies going "green" the paperboard industry is not growing. At best, it has leveled out. Therefore, to increase profits RockTenn must reduce costs and defects. Also, to get new business they must beat their competitors. Pricing is level across the industry; therefore, quality makes a huge difference in acquiring new customers and business.

Lastly, as North America's largest paper recycler they are very conscious about waste. Six Sigma projects also exist to eliminate waste and improve efficiency. Milliken's Performance Solutions are used by RockTenn plants to maintain a competitive advantage over their rivals. Six Sigma is used to fix a single process; however, Milliken's approach is plant-wide. As stated earlier, it is designed for 100% buy-in by the employees. This makes sense for the employees to support the system due to its prerequisites. This makes the plant safer for everyone, jobs easier and more efficient, training more complete, and of course operations more profitable. Jim Milliken states, "That kind of involvement can be messy and time-consuming... but not so much so as failure of the project." His point is that the continuous improvement project is plant-wide, and getting 100% involvement can take time, but the company and its employees will be better off for it (Milliken, 2009). They will be working towards the same goals.

This can also be tricky in manufacturing plants if there is any kind of union involved. However, through the Milliken process employees and management find a common cause to unite against. Once the entire plant gets bought in to the continuous improvement effort through the Milliken process, the completed Six Sigma projects have the backing of not only the practitioner but also the entire plant. This would help in every step of the process starting from data collection to monitoring the modifications to the process to ensure a successful change.

CAN THEY EXIST TOGETHER?

After examining the Six Sigma methodology and the continuous improvement model laid out by Milliken's Performance Solutions, it is understandable why a company would choose to use both of them. Both help develop a competitive edge. Six Sigma improves efficiency and quality output of a product,

while Milliken's Performance Solutions is essentially a cultural change within the company. Nevertheless, they both have their shortcomings or possible setbacks.

With Six Sigma, companies can fall into a cycle where they show early progress but the progress falls through once the project is completed and people are not keeping such a watchful eye on the issue. The issue is called stretching, yielding, and failing (Chakravorty, 2010). With Milliken's Performance Solutions companies can spend money trying to get support from the employees. Without their buy-in the process can become one-sided; half the company cannot support the Performance Solutions if the other half is hindering or working against them.

It is easy to see why companies use at least one of these options to support their continuous improvement. With RockTenn utilizing the methods of both it would not be surprising to see them overtake other leaders in their industries. Continuous improvement is a vital part of a company's business model whether they are using the Six Sigma methodology or Performance Solutions by Milliken.

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