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What is Lean & Six Sigma?

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Six Sigma is a set of practices to systematically improve processes by eliminating defects. A defect is defined as failure of a product, process or service in meeting requirements of internal or external customers.

The Six Sigma ensures the quality control, total quality management and zero defects. Through the implementation of the Six Sigma it is made sure that the goals are set on the improvement of all processes to reach the level of better quality. "The Six Sigma" shows the organization's ability of highly capable processing in producing the outputs within the limited specifications. Therefore it can be said that the processes that operates with the Six Sigma quality, is able to produce a quality products at a low rate of defects.

1) Reduce rejection, scrap and rework
2) Reduce customer complaints
3) Reduce field failures
4) Optimize processes to improve productivity and reduce manufacturing costs in terms of energy consumption
5) Set appropriate tolerances on dimensions process and parameters.

What does Six Sigma competences provide you?
1) The ability to deliver business benefits effectively.
2) The knowledge and skillset to enhance efficiency of processes and workflows.
3) Competence, which is highly demanded in the industry (Analytical, Statistical, Facilitation, Project Management Skills etc.)
4) deal preparation for a leadership role.

Six Sigma as a management methodology has helped thousands of professionals world over to reduce cycle times, increase productivity and improve quality and delivery of processes.

What if your organization does not practice Six Sigma?
The skill set you gain through Six Sigma methodology is useful in a wide variety of situations. If you apply the philosophy, methods and tools at your workplace, you are likely to be identified and appreciated by peers and seniors. If you succeed in completing an improvement project, your professional stature is elevated and it clearly shows your readiness for more important roles in the company.

Six Sigma is a set of practices originally developed by Motorola to systematically improve processes by eliminating defects. A defect is defined as nonconformity of a product or service to its specifications. In other words every time you do an activity you get exactly the same outcome (result), the same quality. For example if I fill in a form or take an order or solve a customer issue or make a part no matter who does it the output is the same.

Top companies all over the world including Motorola have made Six Sigma a way of life for their business. This however requires commitment to the approach from top management down. If this is achieve then implementation and acceptance is easier and leads to massive savings. Motorola have made $17b savings up to 2006 using the approach. It ensures that everyone focuses on reducing variation in every aspect of the business from filling in forms to making a part. All activities in a business of any kind can be measured, analyzed, improved and controlled and thus using some simple tools can give a reduction in variation leading to improved quality and costs.

Why do we want a reduction in the variation we obtain from any activity in our business? When we have the same output from a process or activity we know what we are going to get which makes the next step in the process easier and quicker to complete. It reduces the amount of time wasted completing a task and it means that the quality of a part or process step is higher reducing the need to rework or redo the activity. The simplest analogy is to think of golf and putting into the hole.

If every time you took a putt you got the ball into the hole think how good that process would be, now think how good your putting is. In business if every time a part was made it was identical in every way to how it was meant to be – shape, form, look, feel etc that would mean we would have no quality issues. If we were completing a form and every time every field was correct, easy to read, all data correct, all numbers correct and it was the right form think how quickly things would be done. Well that is what Six Sigma is all about reducing the variation in everything you do.

The term "Six Sigma" refers to the ability of activities or processes to produce output within specification. In particular, processes that operate with Six Sigma quality produce at defect levels below 3.4 defects per (one) million opportunities (DMO). Six Sigma's implicit goal is to improve all processes to that level of quality or better. That would mean that every time you did something one million times you would only make a mistake 3.4 times.

To achieve these improvements in variation and therefore quality improvements and cost reduction Six Sigma uses an approach to solve problems (sources of variation) which is a standard methodology which everyone must use when solving problems regardless of size. DMAIC which was inspired by Deming's Plan-Do-Check-Act cycle is a sequence which if followed will ensure that not only will the root causes be identified but the best solution will be found then implemented into the organisation permanently rather than for a short period before it goes back to how it was. If you are designing a new process or product then the methodology used would be DMADV.

DMAIC
Basic methodology consists of the following five steps:
• Define the process improvement goal or problem to be solved this should be consistent with customer requirements and the business strategy.
• Measure the current process and collect relevant data for future comparison.
• Analyse to verify relationship between factors and to identify the real root causes ensuring that all factors have been reviewed.
• Improve or optimize the process based upon various analysis tools to identify a number of solutions and then using data determine the most optimum for the problem
• Control to ensure that the solutions is implemented into the organisation and embedded so that it is does not return.
This uses a series of tools and techniques to continuously measure the process and institute control mechanisms.

DMADV
Basic methodology consists of the following five steps:
• Define the goals of the design activity that are consistent with customer requirements and business strategy.
• Measure and identify CTQs (critical to qualities), product capabilities, production process capability, and risk assessments.
• Analyse to develop and design alternatives, create high-level design and evaluate design capability to select the best design.
• Design details, optimize the design, and plan for design verification.
• Verify the design, set up pilot runs, implement production process and handover to process owners.

Many people get confused by Six Sigma and believe that it is simply a case of applying a number of tools. This has lead to many failed implantations of the methodologies. Other people are put offSix Sigma by the amount of data collection and analysis which is used. Simply put Six Sigma is all about data, if you have not got data you are just another person with an opinion. One of the reasons Six Sigma has been so successful in companies such as Motorola is that it is all data driven the methodology makes you use the data, analyse the data and then come up with solutions. To do this you must use statistics and tools which use stats to investigate and solve problems. As such typical tools used in Six Sigma include:-
They can seam daunting and put off many people but the simple truth is that you don't have to know them all. You don't even need to use them all. It is good ideas to have one or two people in your organisation who have detailed knowledge of them all you have to do is to know when they should be used then call in the experts.

When used properly Six Sigma can dramatically reduce variation in your processes and lead to massive savings. However when coupled with Lean it becomes even more powerful.

Six Sigma certification is a confirmation of an individual's capabilities with respect to specific competencies. Just like any other quality certification, however, it does not indicate that an individual is capable of unlimited process improvement – just that they have completed the necessary requirements from the company granting the certification.

Customers are becoming increasingly demanding. As a result, they must consistently deliver products and services that are of greater value. Many companies pursue either Lean or Six Sigma as means to meet these challenges. Individually, they fill important needs. Both are based on improvement. However, using one or the other alone has limitations. Six Sigma reduces scrap rates and quality defects by focusing on measurement systems as well as capability or process quality variation; however, it doesn't optimize process flow. Lean doesn't dramatically improve process capabilities but it does target cycle times, wastes and other process costs. When used together, these methods complement and reinforce each other.

Why Lean Six Sigma?
Lean as the name suggest is the production of products or services using the least of everything – human effort, investment in inventory, machines, space, tools, time, development, transport / movement. The term is called Lean, Lean Manufacturing and Lean Enterprise all meaning the same thing and deriving from the Toyota Production system and some other sources. It is however very simply the reduction of waste from your processes it has enabled Toyota to become one of the biggest and most reliable car companies in the world.

Lean is therefore the identification and steady elimination of waste through the implementation of perfect first time quality approaches to work, standardisation of processes, smoothing of flow, flexibility of work, long term relationships with customers and supplies and reduction in time leading to cost reduction and business improvement. To achieve this a number of tools have been developed which facilitate the removal of waste from processes and a number of methodologies to implement the principles.

In organisations where the principles of Lean are fully understood the people use the tools and techniques with out thought as eliminating waste and improving flow become the norm. Lean in its many guises has been around since the 1940's and has developed and adapted over the years to become one of the key business improvement methodologies used in many of the worlds leading companies. At its heart Lean is effectively simple and easy to understand. Lean implementation is therefore focused on getting the right things, to the right place, at the right time, in the right quantity to achieve perfect work flow while minimising waste and inventor while being flexible and able to change if the customer requirements change.

However, no matter how simple, at the heart of any Lean implementation is the cultural and managerial aspects of Lean which are just as, and possibly more, important than the actual tools or methodologies of Lean itself. There are many examples of Lean tool implementation without sustained benefit and these are often blamed on weak understanding of Lean in the organisation.

Speed, quality and cost are the components that drive the success of any organization. Lean Six Sigma works on all three simultaneously because it blends Lean, with its primary focus on process speed, and Six Sigma, with its primary focus on process quality, within a proven organizational framework for superior execution. This program specifically addresses how integrating Lean (making work faster) and Six Sigma (making work better) helps an organization move quickly with higher quality and lower cost.

As stated above Lean and Six Sigma when used together will provide a business improvement methodology which combines tools from both Lean Enterprise (Manufacturing) and Six Sigma. Lean eliminates the waste in your processes, while Six Sigma ensures quality through the elimination of variation in your processes and also provides a structured data driven structure to solve problems and implement sustainable change into your business.