

Lean? Six Sigma? or Lean Six Sigma? What are the differences? What is needed to reach the world class?

By Edwin Kippers



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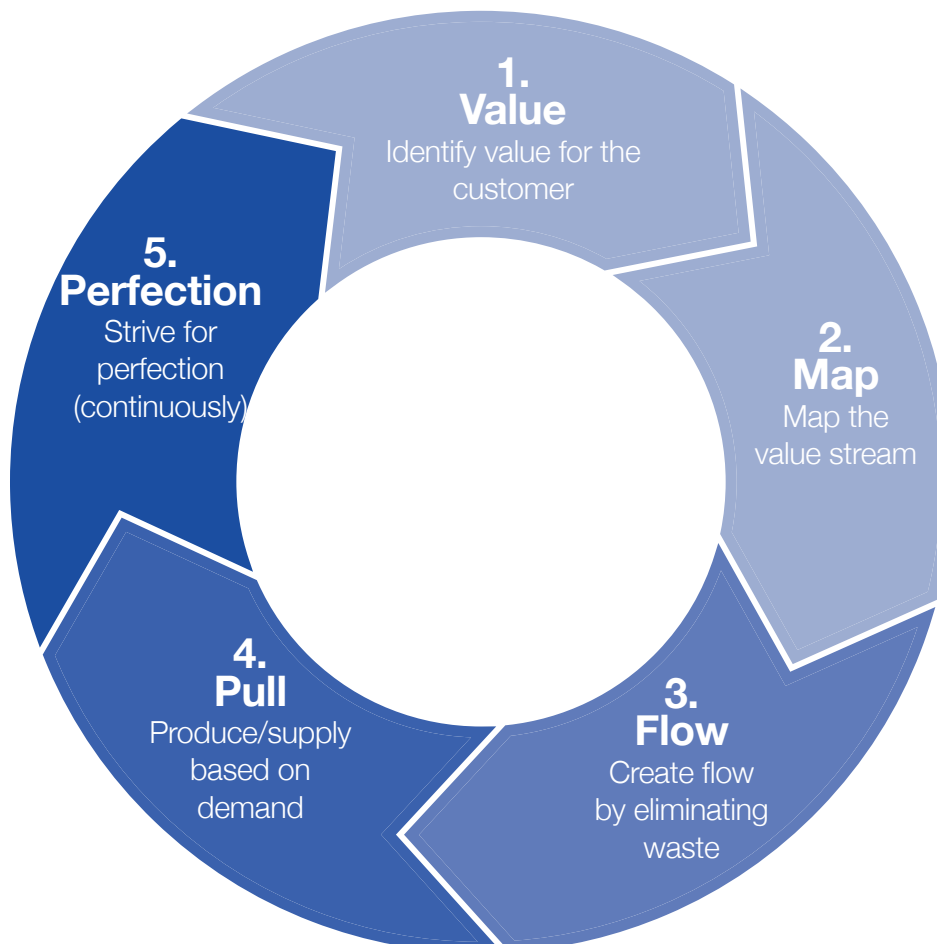
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Introduction

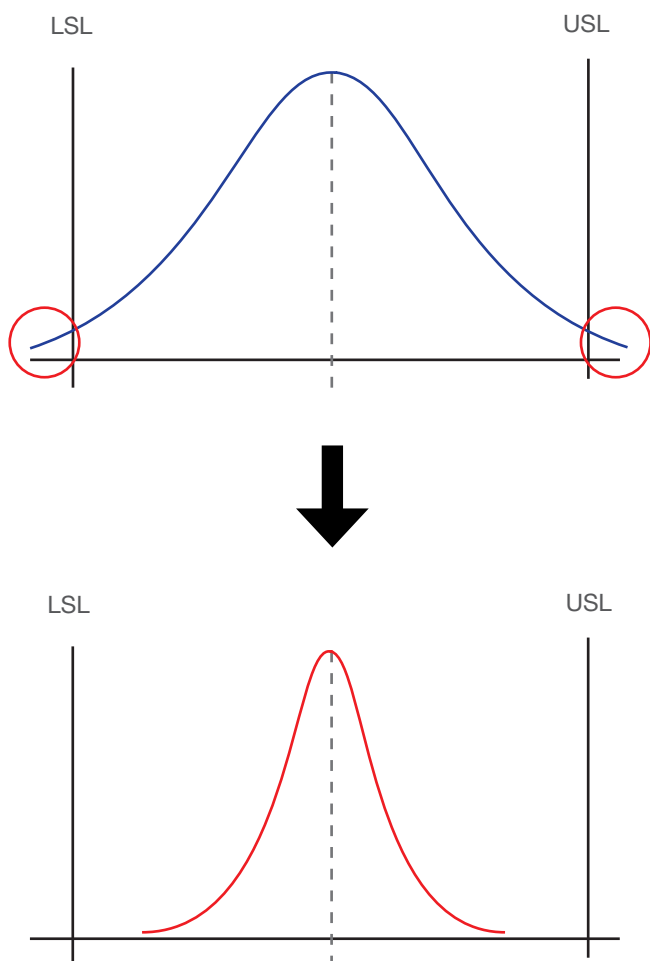
Today, many organizations are working on improving their processes and their organizations. It is often necessary, for example, as a result of cutbacks or increased international competition. Surviving and achieving good results seems only feasible in the case of excellently organized and functioning organizations. Various improvement methods can be implemented for this purpose: Lean, Six Sigma, Lean Six Sigma and many more. However, for many organizations it is often unclear how they should start and what is the best approach for them. Organizations start with Six Sigma, for example, while hardly any data is available. Or when the data is available but the processes are not clear and so on. This white paper is written to provide organizations, which are about to start an improvement initiative, with more insight.

What is Lean and what is Six Sigma?

Lean and Six Sigma are often mentioned together: Lean Six Sigma. Yet they are two different disciplines. Both Lean and Six Sigma are management method and philosophy. Lean is developed from the Toyota Production System and has been translated by Womack and Jones into a philosophy with the principles mentioned in the image below. The goal of Lean is to create a process in which as much value as possible is added and wastes are eliminated. This results in an output that is in line with the expectations of the customer and with a minimum lead time.



Six Sigma is originated at Motorola from the perspective of quality. The starting point of Six Sigma is to reduce the variation that each process has. We use a systematic approach called DMAIC (Define, Measure, Analyze, Improve and Control), which is made of various statistical tools to determine the cause of the variation. The processes can then be improved to a so-called Six Sigma level, which means that 3.4 times out of 1 million does not meet customers' expectations. The graph below shows that as a result of a Six Sigma project the spread of the outcomes has become much more limited. It means that in most cases the specifications of the customer are met. The philosophy of Six Sigma is that every organization must strive to get its processes to a Six Sigma level, so that in almost all cases the customer expectation is met.

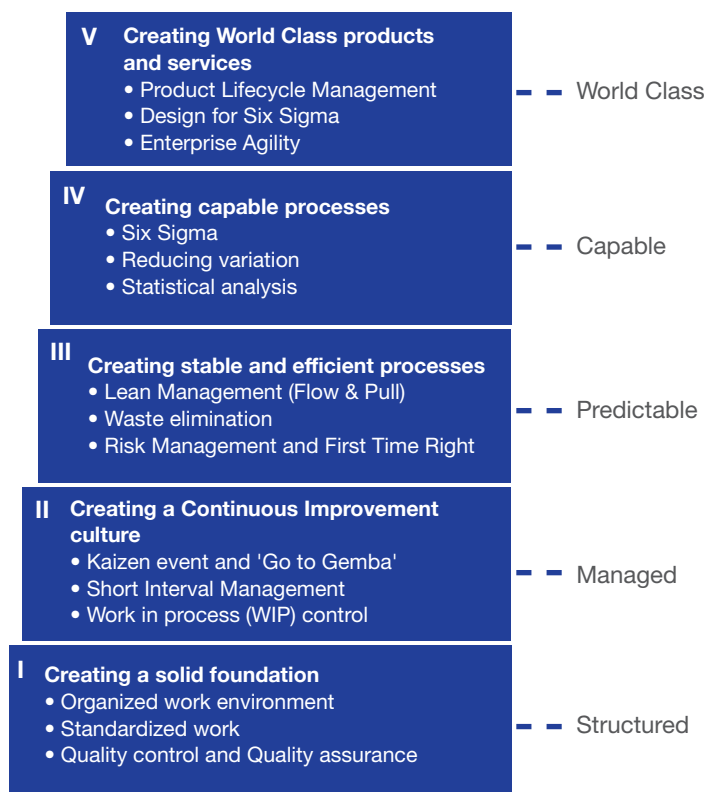


Nowadays we see that in addition to the separate approaches like Lean and Six Sigma, Lean Six Sigma is often referred to as one approach. The backgrounds of both Lean (reduction of waste) and Six Sigma (reduction of variation) and the step-by-step plan of Six Sigma (DMAIC) are then used to transform an organization into the World Class.

Facing these methods, it is however not clear for many organizations which approach to choose, how to start and how they can subsequently be successful. To give these organizations more clarity, the Continuous Improvement Maturity Model (CIMM for short) was developed.

Continuous Improvement Maturity Model

The Continuous Improvement Maturity Model shows five development phases, how an organization can develop and reach the World Class.



Phase 1: Create a solid foundation

This phase aims to lay the foundation for continuous improvement. A standard way of working is developed, which is secured in the quality system. The starting point at this phase is that if you want to improve, you can only do this when the standard way of working is clear for the entire organization and the workplaces are well organized.

Phase 2: Create a continuous improvement culture

From the standardization we can start with the improvements. Using of performance management provides insight and overview in what happens on the shop floor. Deviations are the reasons to start improvement sessions (Kaizens). The organization is starting to get more and more attention for improvement. Today we are doing a little better than yesterday!

Phase 3: Create stable and predictable processes

Here we take one step further. By applying all kinds of Lean tools, such as Value Stream Mapping, the processes are mapped out in details and the wastes are eliminated. The Lead Time is thereby improved. Processes are further streamlined on the basis of customers' demand and thereby the processes become more stable.

Phase 4: Create capable processes

This is the phase in which we will use Six Sigma. Six Sigma is a statistical approach that focuses on reducing variation in order to meet customers' demand in almost all circumstances. A Six Sigma process does not expect more than 3.4 'wrong' products out of a total of 1 million. It means that 99.9996% of the products meet the expectations of the customer.

Phase 5: Create World Class products and services

Once we have reached this stage, we use the knowledge of our processes and products to develop new processes and products. We know how capable we are as an organization and can apply this knowledge further, so that we can further refine and improve the quality of our products and services.

The above development model also shows that in order to achieve a World Class operation, an organization must 'struggle' through all phases. That is why it is not convenient when organizations that do not have the basics in good order but they already get started in phase 4. This often leads to a half-completed implementation because it may lack of data to apply the right statistical analyses. The Green and / or Black Belts understand exactly what they have to do, but the rest of the organization is not that far yet.

The organization does not understand the Belts, which creates the idea that Six Sigma is far too complex and is not suitable for the organization. This will then lead to frustration for the Green or Black Belts. And the ultimate consequence will be that the organization will continue to work, as it has always done and in many cases simply throws away the money it earns, because all kinds of problems are not solved structurally.

CIMM clearly shows how this situation is formed because we have skipped the necessary steps when trying to develop our organization.

How do we implement it?

Simply speaking, follow the CIMM steps. Therefore make sure that the defined processes are incorporated in the standard working methods. In the beginning, they shall not be perfect but implement the continuous improvement through the medium of Kaizens to gradually further improve the processes. We introduce performance management, or in other words, we control our standardized processes through performance measurement. Next, we select a series of important processes,

which are qualified for a Lean Transformation through the application of Value Stream Mapping. The starting point is to first improve the primary processes from the beginning to the end and not just to improve the small parts of them.

The combination of standard working methods, process improvement and performance measurement provides an organization an insight in what they do. Taking the Voice of the Customer into consideration gives them an idea of how well they do it: can we as an organization always meet this Voice of the Customer or do we have to disappoint our customers on a regular basis? Nowadays the organization is capable of analyzing the measured data extensively using various statistical tools.

Can we not use Six Sigma at an earlier stage? Of course we can but the precondition is that we have sufficient insight about the process and rich data to perform various statistic data analyses. In that case we can perfectly apply the Six Sigma DMAIC approach to realize a process improvement.

Tools versus philosophy

Finally, there is a clear difference between the application of the various tools and the implementation of the philosophy. We can use the various tools for both Lean and Six Sigma in all phases of the development model, but the development of the organizations requires a clear application of the philosophy. A philosophy must be worn throughout the entire organization. Therefore it is necessary that we make a link with the mission, vision and strategy of the organization. To implement a philosophy like Lean Six Sigma, we need a clear vision, how philosophy will help the organization further towards their strategical goals. Furthermore, it is necessary to obtain the commitment of the organizational leadership. Commitment of management does not only mean that they believe in philosophy, but also act accordingly. Advice here is of course to follow the phases of CIM Model in order to significantly increase the chances of a successful organizational development, as explained earlier.

In addition, it is important that the people are qualified and they are responsible for the successful implementation of the philosophy, methods and tools. Lean Six Sigma has a wide range of training and certifications, which ensure that project managers and other people who are in charge of the implementation are qualified and certified at the right level.

About the author



As a Lean Six Sigma Master Black Belt, Edwin Kippers supports companies in achieving Operational Excellence. This means cost-effective production of products that meet the expectations of the customer: delivering on time at the required quality level and at the lowest cost. He trains and coaches Green and Black

Belts in carrying out their projects and guides the management team in transforming into a Lean Six Sigma organization. In addition, he delivers the Champion training as well as Lean Six Sigma training at Green Belt and Black Belt levels.

About the companies



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