



## Improve Your Testing With LEAN Thinking!

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In our *pursuit of quality* we often use Test process improvement models. These models are often based on reference models which contain the best practices of other people or organisations. They are not necessarily the best solution for your organisation. I believe it is better to look at your own processes first and start improving the most important bottlenecks by using existing techniques which are already proven in practice from Lean and Six Sigma. Improve your test processes in close cooperation with other processes that test relates to. Use test process improvement models and test methods as reference, but not as target. Use what suites best to your own organisation and processes. So how do Lean and Six Sigma relate to testing?

### Lean: to create a better workflow and eliminating redundant activities

Lean manufacturing is a company process improvement method. It is developed from a logistics point of view. Lean manufacturing concentrates on banning waste to become quicker and more efficient. Every process that does not add value for the customer is eliminated. The Lean manufacturing philosophy is derived mainly from the Toyota Production System (TPS). It is renowned for its focus on reduction of the Toyota 'seven wastes' in order to improve customer value. The basis of Lean is the **7 wastes** that have to be eliminated. Many of those can be related to testing as well. They are:

- Overproduction (e.g. too many test cases)
- Waiting (e.g. for documents or the test environment)
- Transporting (e.g. findings assigned back and forwards between testers and developers)
- Inappropriate processing (e.g. testing the wrong version of the software)
- Unnecessary inventory (e.g. maintaining too many test cases)
- Unnecessary / excess motion (e.g. too many test cycles)
- Defects (e.g. too many failures in production or too many wrong findings)



### Six Sigma: improvement of processes by increasing the predictability of their outcome

Six Sigma is a quality management method that offers a framework to manage quality. By many it is seen as a successor of Total Quality Management (TQM) with a high use of Statistical Process Control (SPC) as underlying method. Processes can be controlled when you know how the flow of each process is and to know that you have to measure. Measuring is the basis of Six Sigma. The aim is to work smarter and get a higher quality. Sigma ( $\sigma$ ) is the standard deviation from the average. It is a statistical term that measures how far a given process deviates from perfection. Six Sigma is founded at Motorola in the mid 80's as a solution for problems with product quality and customer satisfaction. Six Sigma got its big popularity when it was used on a broad scale at General Electric and gained billions over a period of multiple years.

**(Lean) Test Management: managing the testing process to improve the quality of the test object to be measured within the planned time and budget.**

Within Lean Test management the best of the Lean and Six Sigma theory is combined with testing. Within Lean the focus lies on eliminating activities that do not directly add value to the customer. Some examples of redundant activities related to testing: producing too many test cases, long waiting times for design documentation and the test environment and too many defects. (Lean) Six Sigma focuses on achieving a higher quality by working smarter. This can be achieved through the following points.

- *The customer is the starting point.* Testing should focus on adding the best value to all stakeholders. E.g. Set priorities based on a product risk analysis.
- *Improve your test processes.* Use models and methods as reference, but not as target. Use what suites best to the organisations own processes.
- *Ensure teamwork.* Not only within the test team but also with the other members of projects and other processes.
- *Collecting and analysing data.* Improving the test process cannot be done without measuring the effect of the changes made in the process. Keeping metrics, analysing and taking action should become a company’s second nature.

It is often tried to implement improvements to processes, which was not always successful. Why should it succeed when using (Lean) Six Sigma? If we strictly follow Six Sigma, we are “forced” to use metrics to track, analyze and possibly improve our processes. There are several techniques

available, which are also very useful for testing. Lean Test Management can be seen as a good addition to existing test improvement models. These models are based on a benchmark against which your organization is compared and focus mainly on the test process itself. The improvement techniques associated with Lean Test Management “talk” from your organization. The specific situation of an organization is thoroughly investigated and based on the results, the necessary improvements are considered. Not only testing is investigated but also the surrounding processes and their interactions with the testing process are not forgotten. A lot of waste is often initiated on the interfaces of these processes and in order to make the combined process more “lean” it is a good idea to focus on those borders and get rid of that waste. There is much to be gained.

Summarizing, by applying Lean Test Management,

- The test process will become more efficient. All activities that have no direct added value for the customer have to be deleted;
- The quality of products will increase by work smarter;
- Test process improvement will start from within the organization and existing processes, and therefore the best tailored results can be obtained;
- Insight will be gained into the processes around testing that also need improvement in order to make the testing process more efficient.

Using lean and six sigma techniques can help organizations improving their testing process in a good balance with other processes. Lean thinking will make test process improvement work for you!