

Lean Poster Series #19

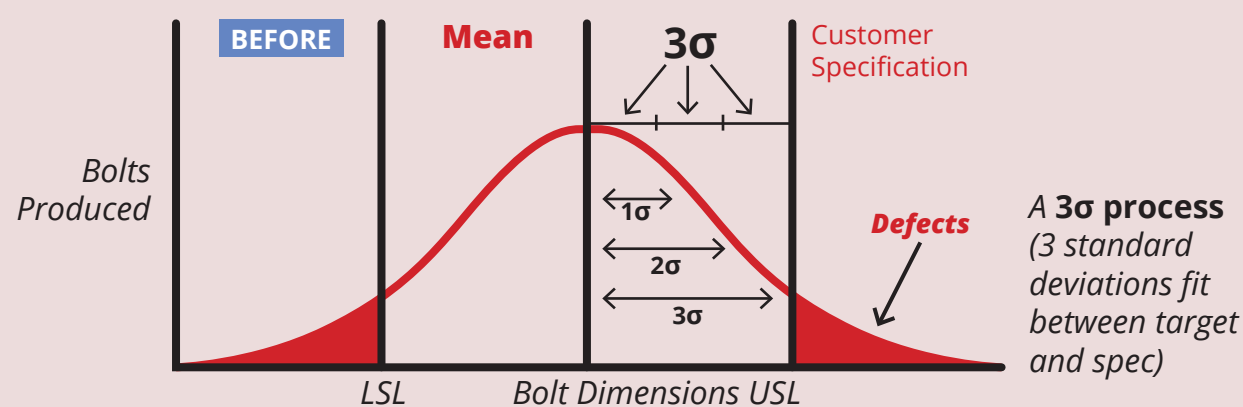
What is Lean Six Sigma?

An Introduction to Lean and the Six Sigma Principles

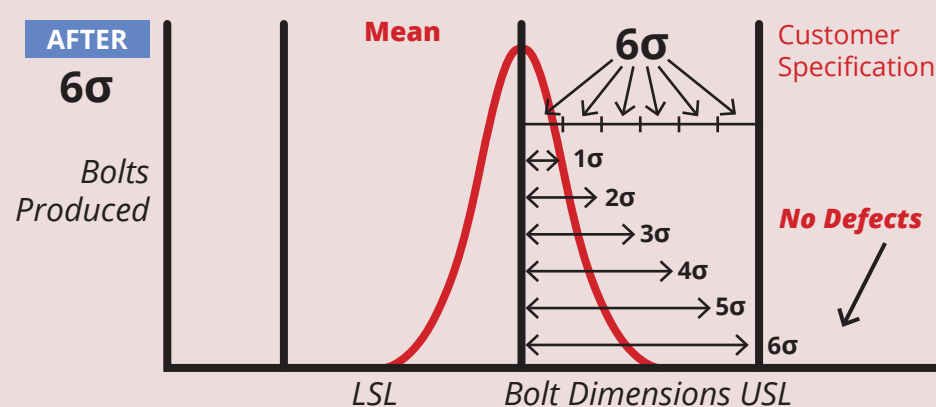
Lean Six Sigma is a business improvement methodology made up of two parts: Lean and Six Sigma.

Lean is about removing complexity from your processes. Your processes as they stand may have grown organically according to historical criteria that may no longer be relevant. Lean will reduce the number of steps in a process by identifying those steps that do not add value to the customer, and if possible removing them (some maybe remain necessary). This makes your processes faster, and your customer happier. Lean is about speed.

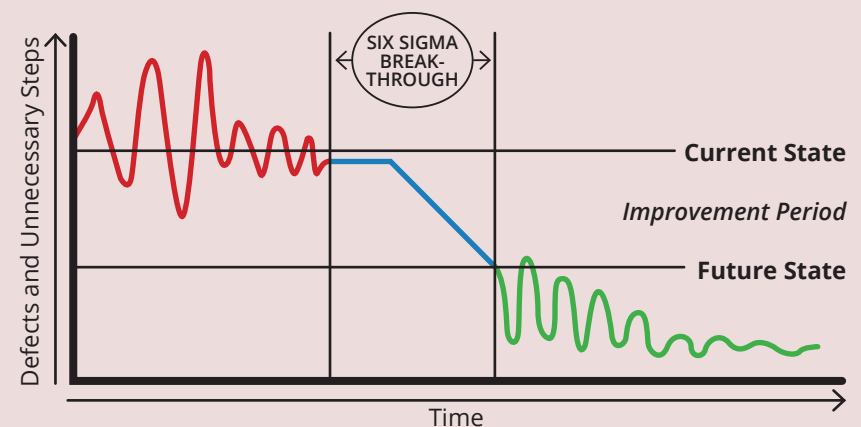
We can illustrate the basics using a simple example. Let's say a factory produces bolts that need to be a certain dimension to meet the needs of the customer. They can be no smaller than x, and no bigger than y. In Six Sigma we call x the Lower Spec Limit (LSL) and y the Upper Spec Limit (USL). Bolts produced that fall outside of these spec limits have to be recycled. These bolts have eaten both time and material, and have incurred a recycling cost for no return.



We can plot this using a bell curve. As the curve above shows, a good number of bolts are produced with the appropriate dimensions, but falling away on both the larger and smaller sides are an infinite number of segments in both directions. In statistical theory, these segments are called 'Sigma' (represented by the Greek letter σ , and represent the deviation from the mean (the peak of the curve) from the LSL and USL. The chart above shows a normal distribution, which is a range of -3σ and $+3\sigma$ covering 99.73% of bolts produced. This is the current state, as illustrated in the final diagram.



Six Sigma, by definition, considers a range of -6σ and $+6\sigma$ (see figure above). Statistically, this is 3.4 defects out of every 1,000,000 opportunities, or a covering of 99.9997% of bolts produced. This is the future state, as illustrated below.



Any Six Sigma project therefore starts from a baseline of high variation. If successful, the Six Sigma project will deliver the improved variation range typically within 4-6 months. As you can see in the third graph, the improved state continues to reduce variance, and in partnership with the Lean aspect, make delivery quicker and more streamlined.

