Six sigma very basic concise explanation and use of it

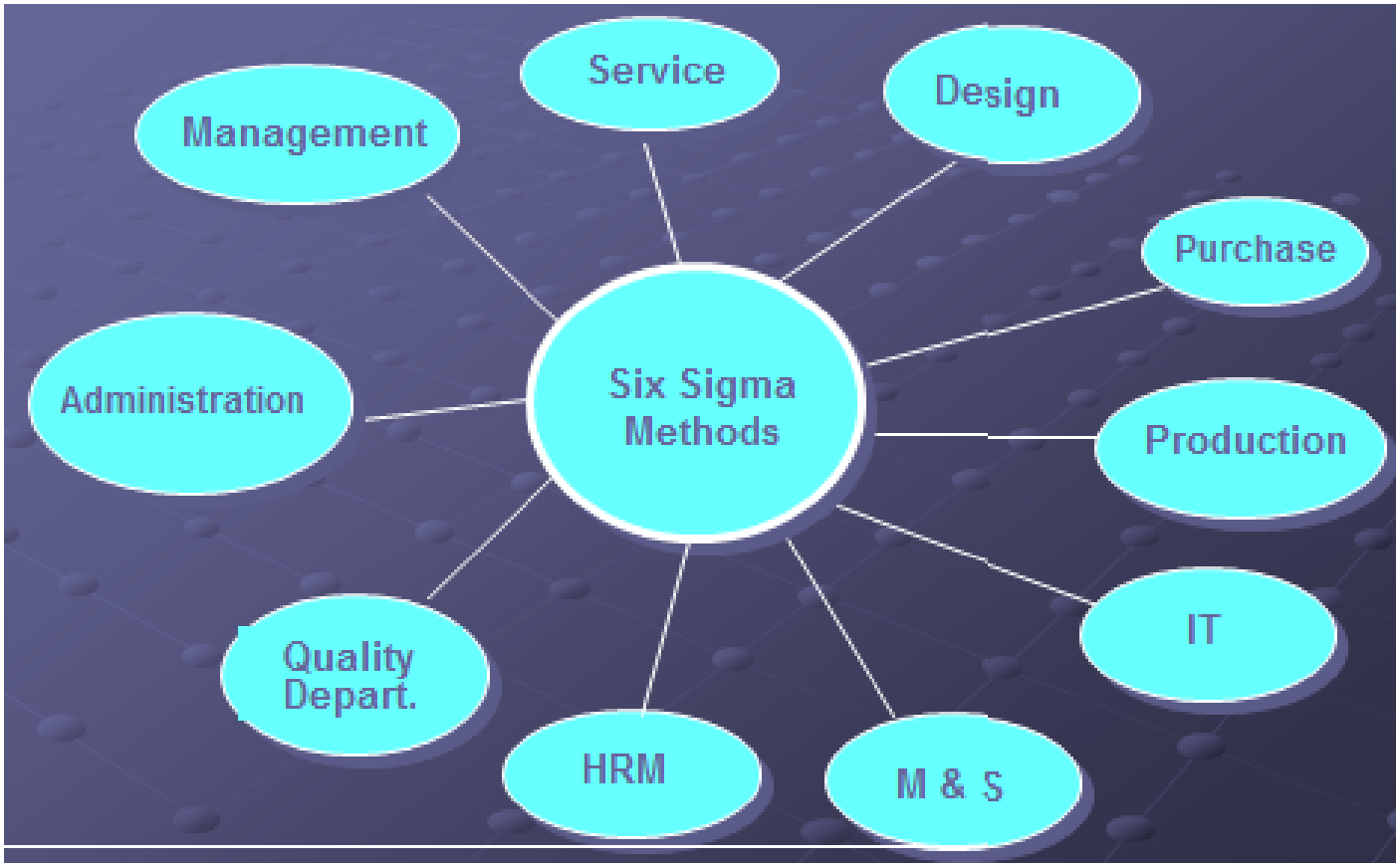
Skorkovský

KPH_ESF_MU BRNO_Czech Republic

Six Sigma method

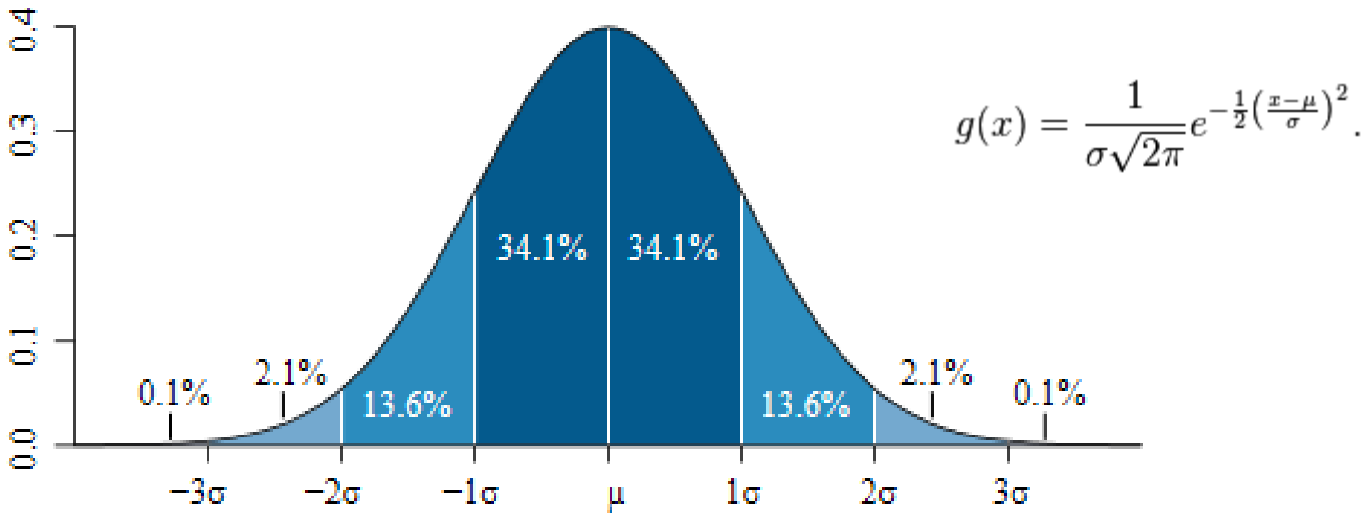
- Motorola 1985
- Use in order to produce better products nad less problem processes
- PPM- parts per million ->4,4 defects /million opportunities
- Six-Sigma-DMAIC methodology

Where Six Sigma method can be applied



Normal distribution

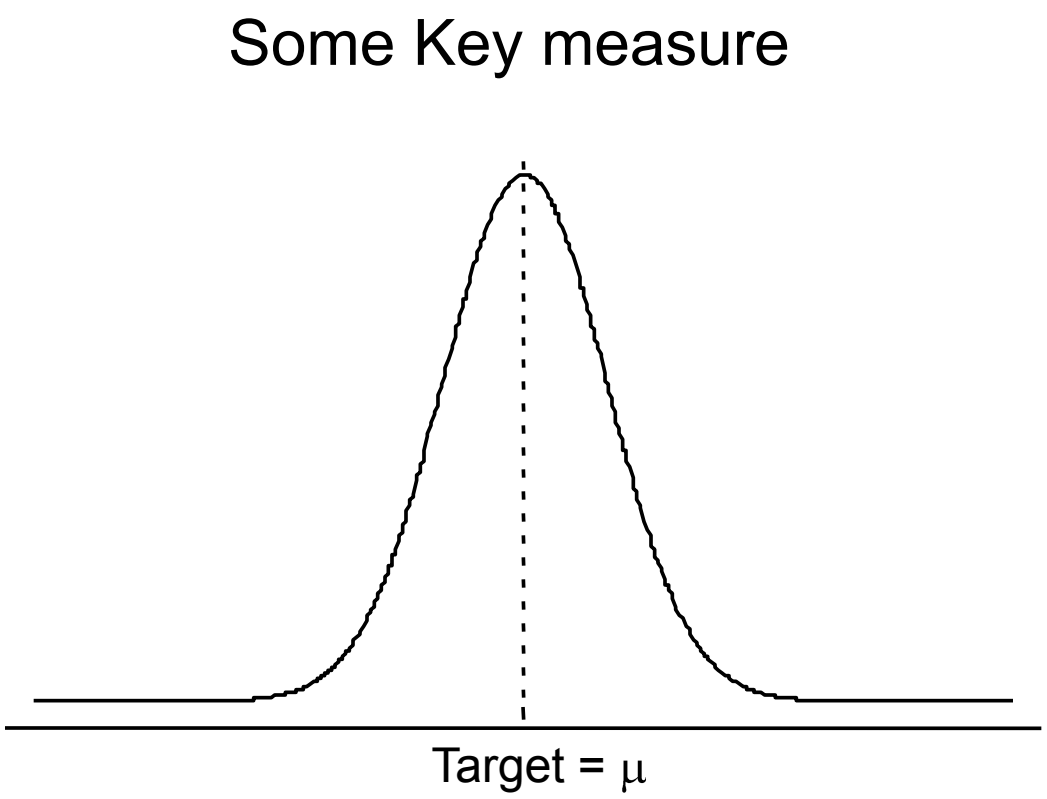
$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2}, \quad \text{where} \quad \mu = \frac{1}{N}\sum_{i=1}^{N} x_i.$$



$$g(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}.$$

Normal distribution curve that illustrates standard deviations. Each band has **1** standard deviation, and the labels indicate the approximate proportion of area (note: these add up to 99.8%, and not 100% due to rounding for presentation.)

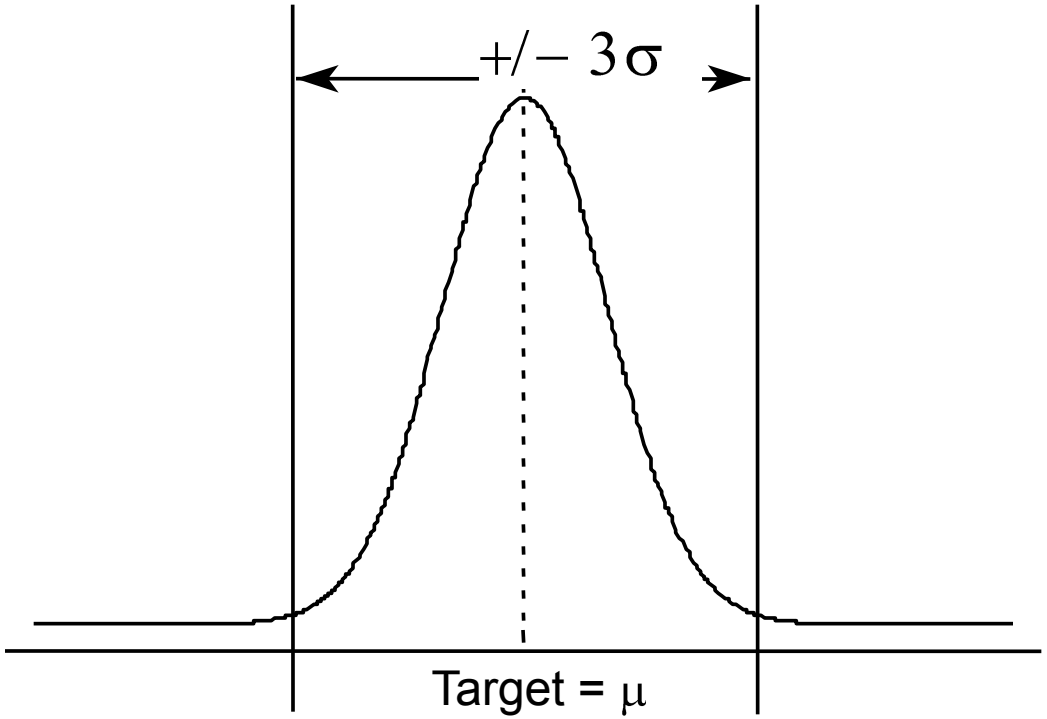
SIX SIGMA Statistical background



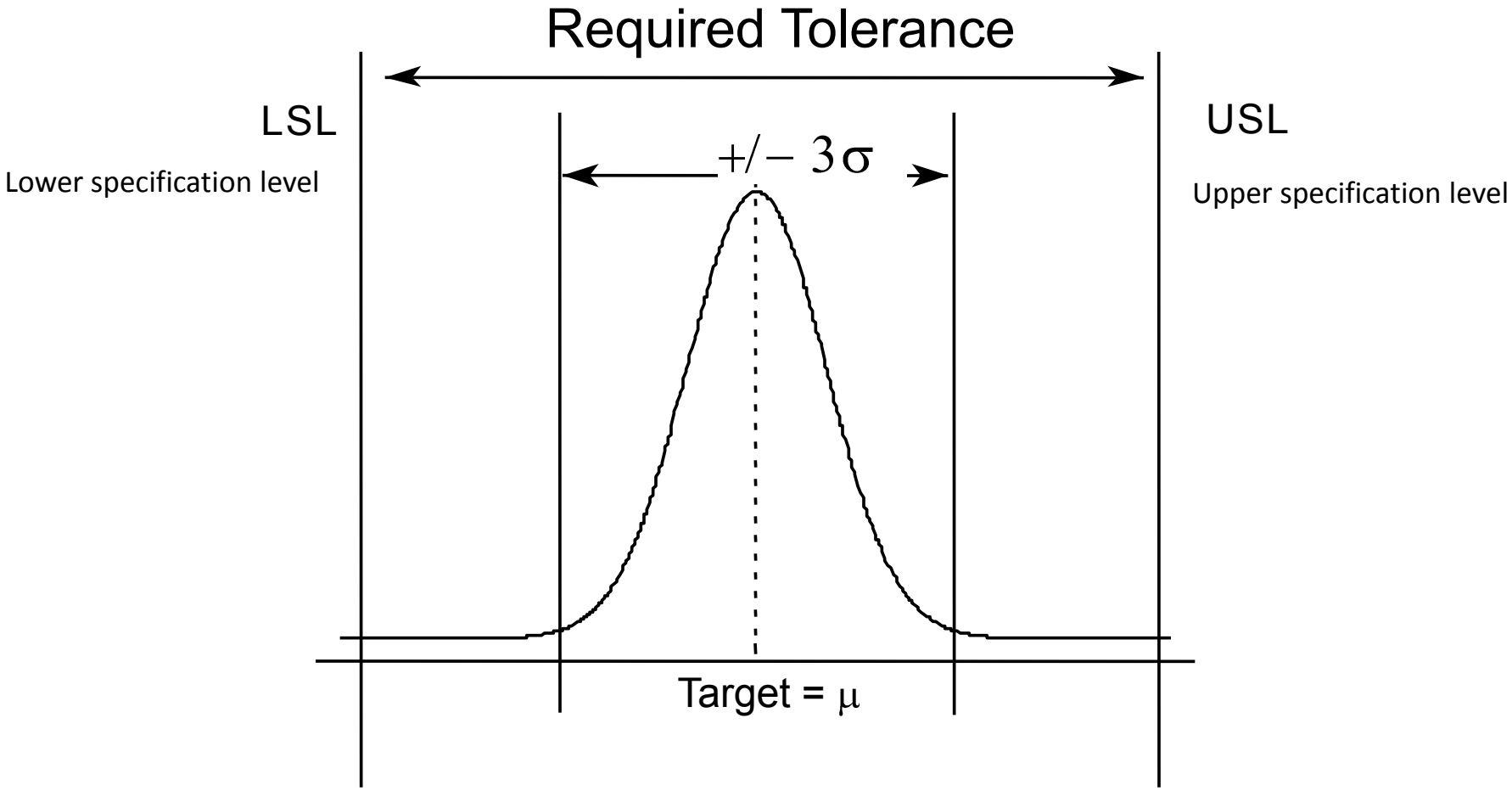
Resource : Pro-Enbis

Statistical background

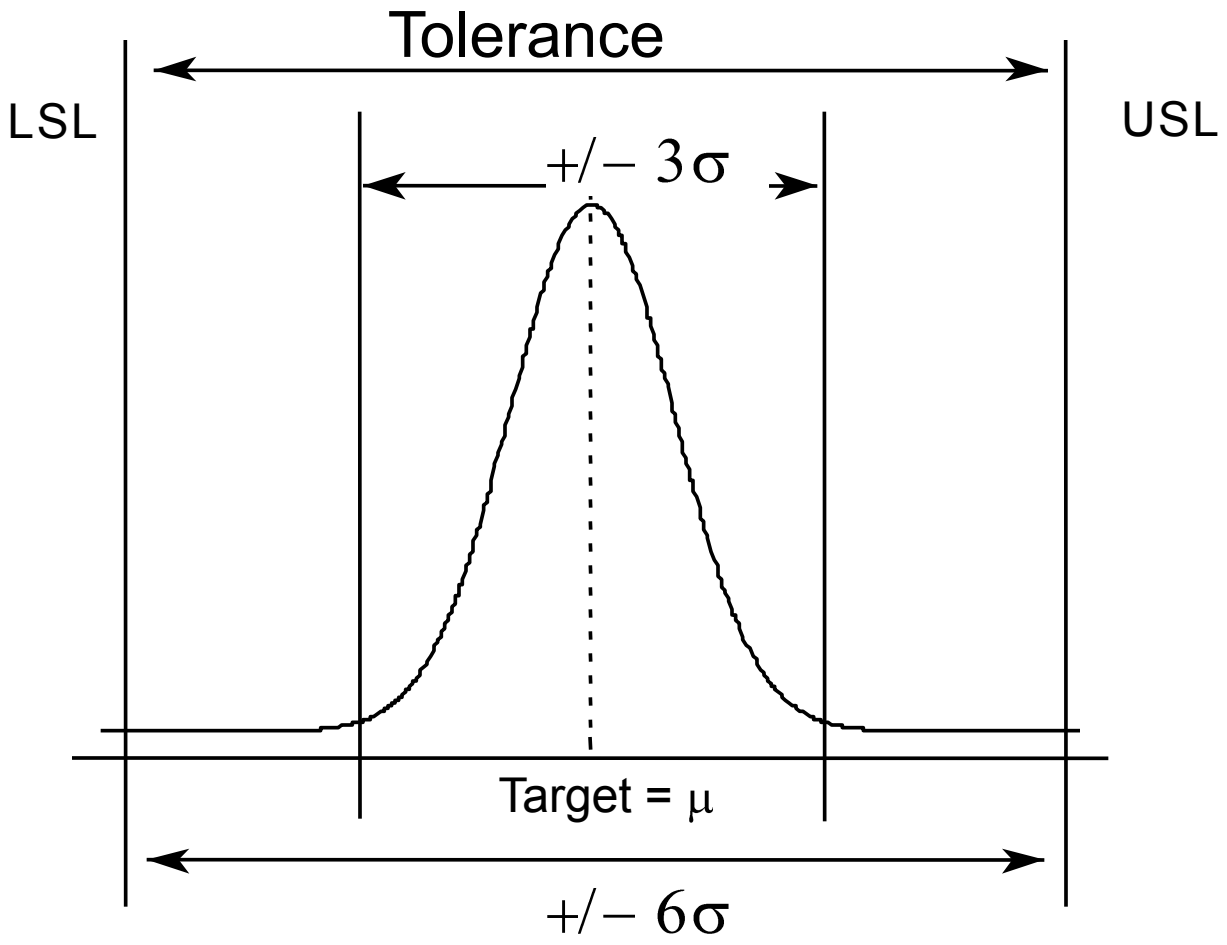
‘Control’ limits



Statistical background

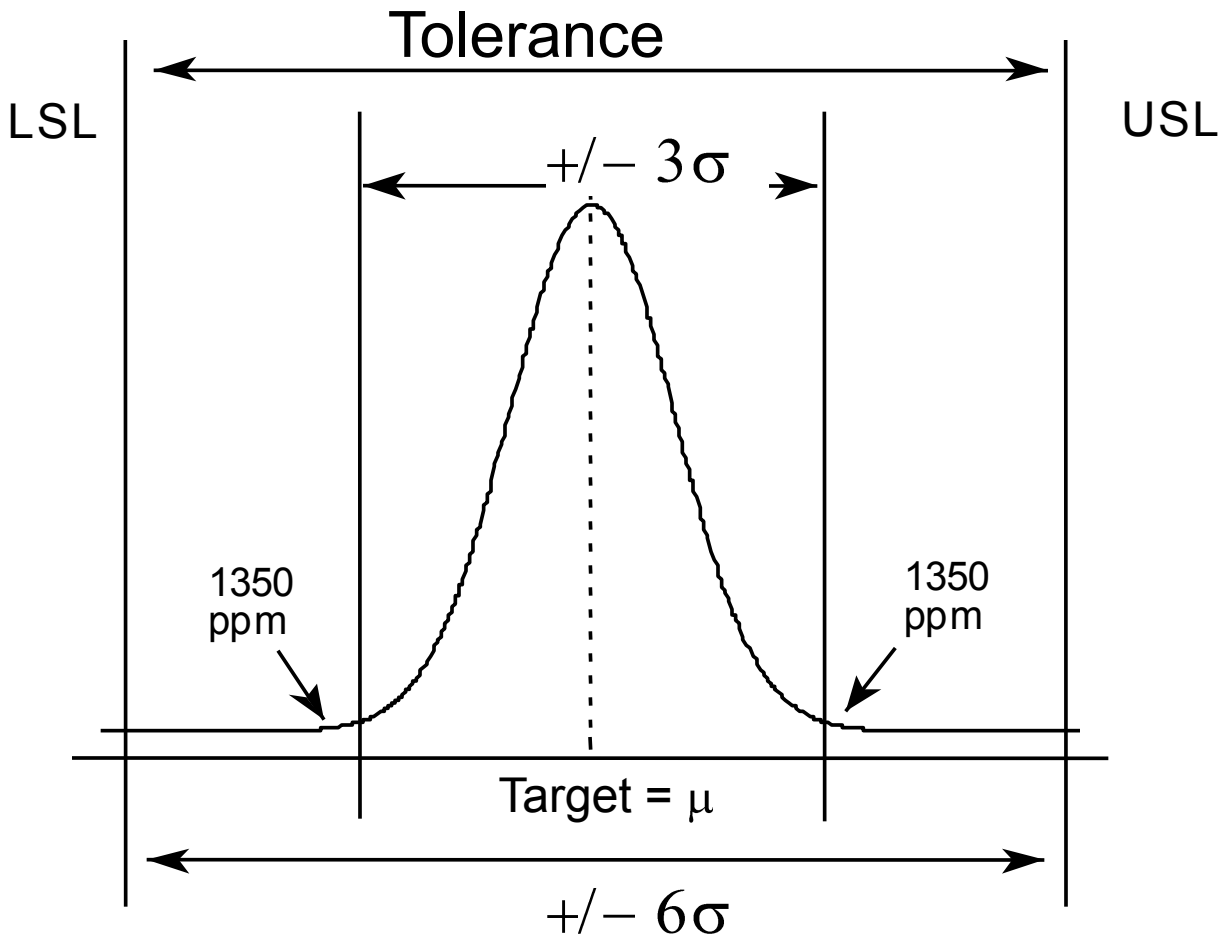


Statistical background



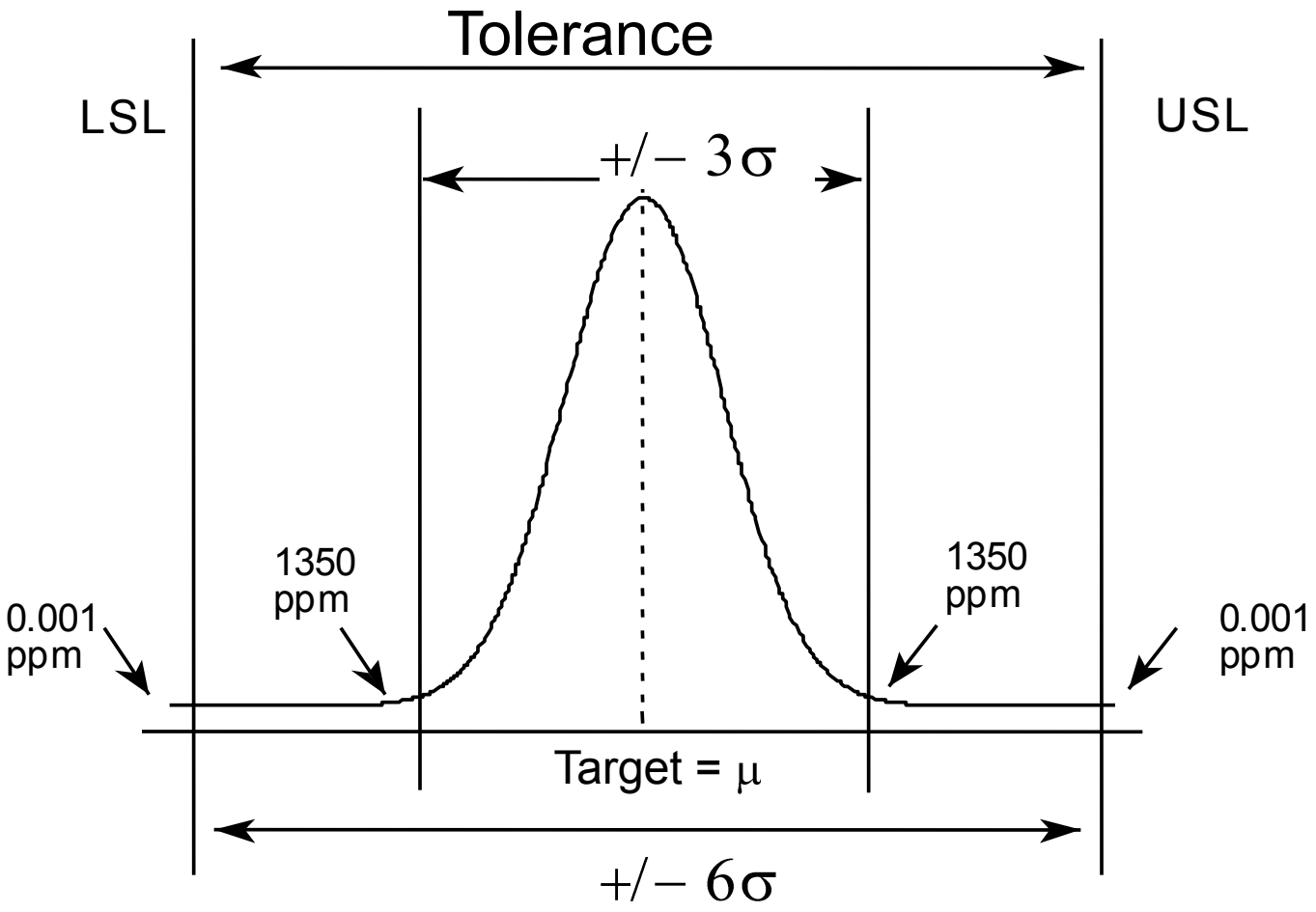
Six-Sigma

Statistical background



Ppm= parts per million

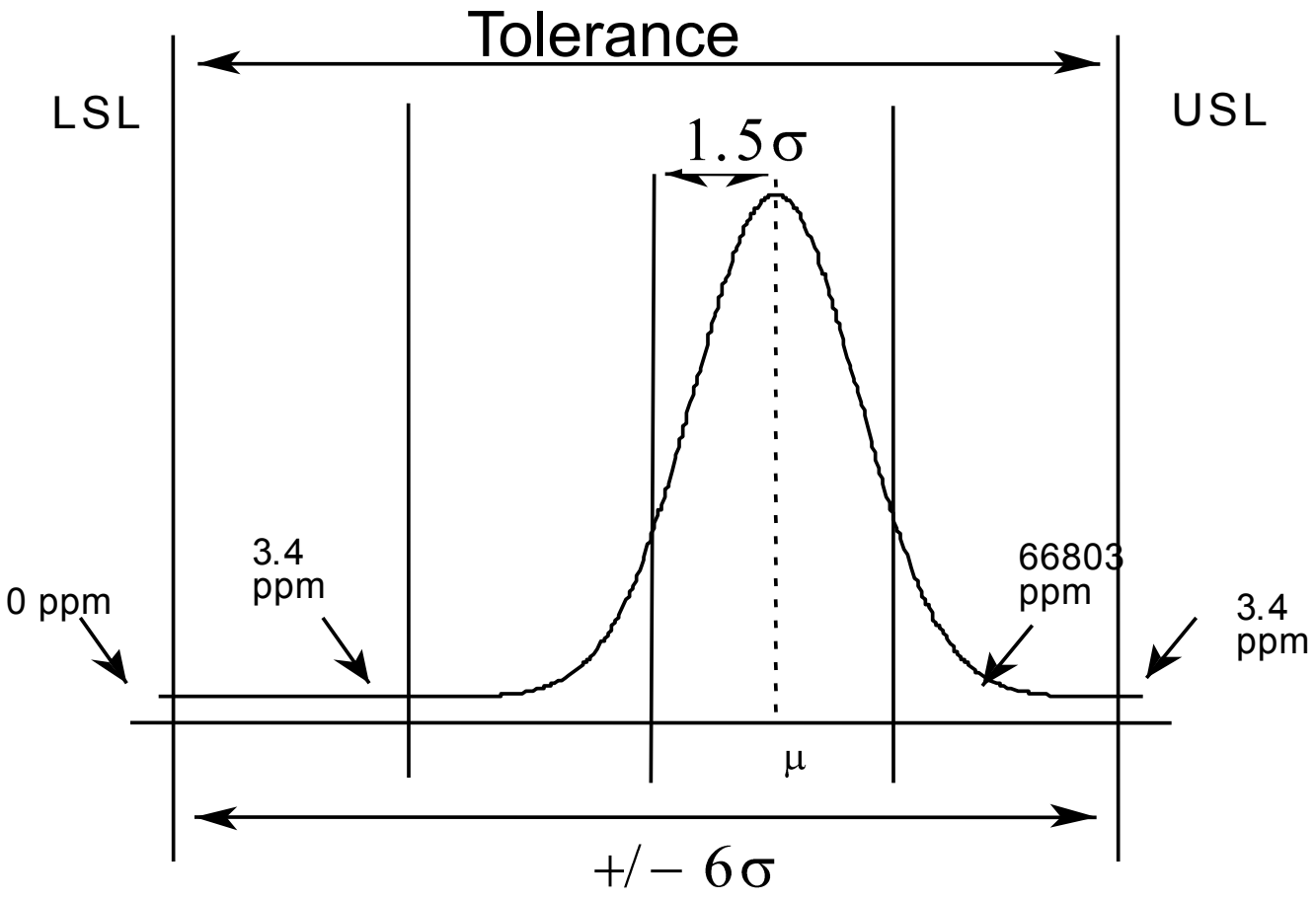
Statistical background



Statistical background

- Six-Sigma allows for un-foreseen ‘problems’ and longer term issues when calculating failure error or re-work rates
- Allows for a process ‘shift’ (1,5 σ)

Statistical background



Performance Standards