

# Six Sigma DMAIC GB Training (Green Belt) Workshop (6 Days)

## What is Six Sigma?

1. Sigma (the Greek character “σ”) is an indicator for process deviation
2. Sigma-Level is a key indicator for process capability
3. Six Sigma means a defined level of process quality; finally nearly a zero-defect process (3,4 ppm) [defects per 1 million]
4. Six Sigma is a standardized procedure for problem solving and breakthrough improvements
5. Six Sigma is a Quality Philosophy which redefines the zero-defect goal.

There are many descriptions of Six-Sigma, ranging from a quality level of 3.4 rejects per million, quality tool, to it being a life changing philosophy.

## Where does Six-Sigma come from?

- 1987 : Primarily conception of Six-Sigma at Motorola
  - Six Sigma Quality Management System
  - till 1992 480 Mio. US\$ savings at a turnover of 9,2 Billion US\$
- 1995: revision and extension of the concept by General Electric (CEO Jack Welch)
- 2010: 40 Six-Sigma companies are within the Top100 of the Fortune 500 List (Fortune List 2010)
- 2018: about 60% of all automotive companies in North America & Germany are currently using Six-Sigma as a highly efficient method for quality improvement.

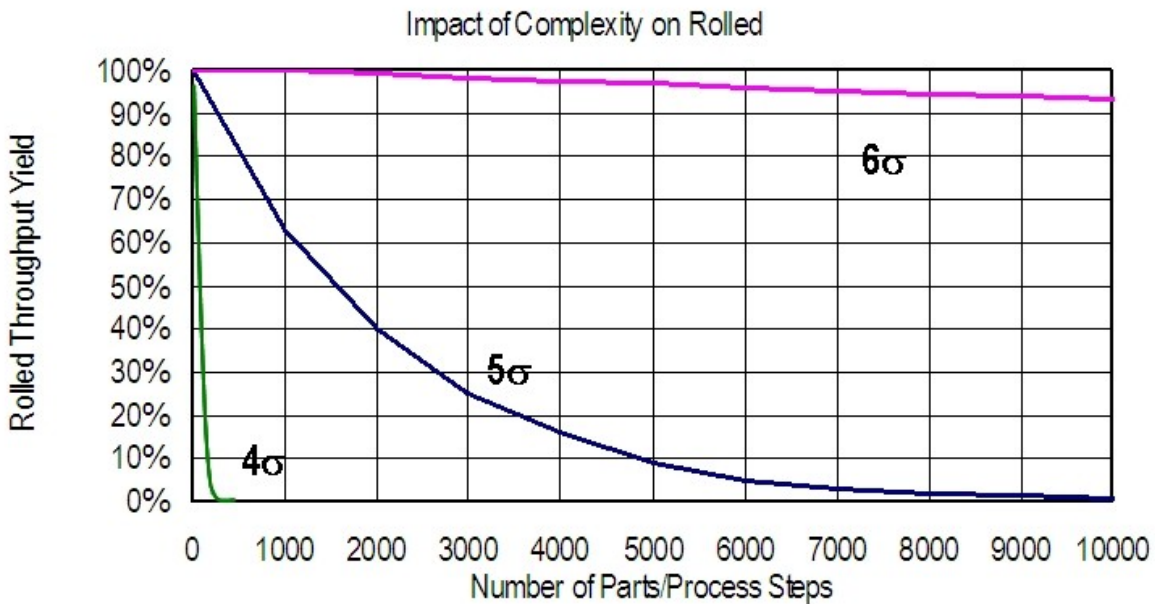
## Why Six Sigma is the Goal?

### Sigma as a Measure of Quality

σ	DPMO	RTY
2	308,537	69.1 %
3	66,807	93.3 %
4	6,210	99.4 %
5	233	99.97 %
6	3.4	99.99966 %
Process Capability	Defects per Million Opportunities	Rolled Throughput Yield (Long Term)

- Sigma is a statistical unit for measuring quality.
- It is correlated to the defect rate and the complexity of the process / product

**Six Sigma is a Standard of Excellence.  
It means no more than 3.4 Defects per Million Opportunities**



**Training Agenda:**

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
09:00~09:30	6Sigma Overview Project Definition	Day1 Project Review	Day2 Project Review	Day3 Project Review	Day4 Project Review	Day5 Project Review
09:30~10:00	Minitab Application in Basic Statistics	TRIZ Overview The 40 Inventive Principle	Hypothesis Test	Correlation & Regrreation	Taguchi DOE Base	AIAG-VDA PFMEA
10:00~11:00			T-Test		Signal-to-Noise Ratio (S/N)	
11:00~12:00		Speak with data graphic	TRIZ - Separation Principles	One Sample T-Test Two Sample T-Test	Regrreation Team Practice	
12:00~13:00	Lunch					
13:00~14:00	Measure Overview	Technical Contradiction TRIZ Application Cases Study	One Way ANOVA	DOE Overview	Dynamic Taguchi DOE	Control Plan & SOP
14:00~15:00	MSA Team Practice			Full Factorias DOE		SPC
15:00~16:00	Process Mapping C&E Matrix	TRIZ Team Practice			Chi-Square Test	Taguchi DOE Team Practice
16:00~16:30	Capability Study Cpk					

### Customer Feedback:

- “This training is pretty practical with numerous cases and exercises, and after training, Julio Liu gives us many six-sigma project Minitab data worksheets to support the training tools applications, it’s really useful.....”
- “We've learned six sigma before, but I think it's too difficult, especially the statistical probability, but Mr. Liu's speech is easy to understand and easy to operate.....”
- “It’s good deal! I have been planning to learn TRIZ long time ago, but the price is high. Now I not only learn the TRIZ, but also integration of TRIZ and DOE...so many excellent Six-sigma core tools. It helps a lot for quality continues improvement...”
- “My comment is simple, if I could attend this training earlier, I can save a lot of money and time for test. I used to make 27 round tests to get the best parameter combination, now with Taguchi DOE in Six-sigma, only need 9 rounds. This reduces the design lead time and cost dramatically...”
- “It’s very practical! it’s exactly what we need in cost saving ! ”

### Course Methodology

- **Breakout Exercises**

- The exercises will be conducted during each training stage to practice Six-sigma core tools such as MSA,SPC,DOE,TRIZ,ANOVA...etc. and also to evaluate the understanding of the training courses.
- The purpose of breakout exercises is to develop skills of Six-sigma application by having individuals or teams working on practical situations

- **Evaluation of Individual Participation**

- Attendees will be evaluated on class participation, which encompasses the following aspects:
  - Asking meaningful questions in class
  - Sharing professional experiences
  - Taking an active role in team exercises
- Effective class participation provides the attendee with opportunities to demonstrate practical understanding of Six-sigma

- **Certificate**

- Certificate will be issued after satisfied participating, training performance evaluation.

*The course has been trained for the following well-known enterprises and has been highly recognized:*



