

## *Lean Six Sigma Abbreviations*

### **A**

<b>alpha</b>	Alpha, risk of rejecting the null hypothesis erroneously
<b>A</b>	Analyze
<b>A/P</b>	Accounts payable
<b>A/R</b>	Accounts receivable
<b>ADU</b>	Average daily units
<b>AFR</b>	Average failure rate
<b>ANOM</b>	Analysis of means
<b>ANOVA</b>	Analysis of variance
<b>AQL</b>	Acceptable quality level
<b>ARL</b>	Average run length
<b>AV</b>	Appraiser variation
<b>AVG</b>	Average
<b>AWU</b>	Average weekly units

### **B**

<b>beta</b>	Beta, risk of not rejecting the null hypothesis erroneously
<b>Bi</b>	Batch size for Part i
<b>BB</b>	Black Belt
<b>BNVA</b>	Business non-value add
<b>BOH</b>	Balance on-hand
<b>BOM</b>	Bill of material
<b>BOO</b>	Balance on-order

### **C**

<b>C</b>	Control and customer
<b>c chart</b>	Control chart for nonconformities
<b>C&amp;E</b>	Cause and effect (diagram)
<b>CAPEX</b>	Capital expenditures
<b>CBR</b>	Critical to business requirement
<b>CCP</b>	Critical Control Point. A step, point or procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to an acceptable level. Part of HACCP (Hazard Analysis Critical Control Points) program.
<b>CCR</b>	Critical to customer requirement
<b>CTQ</b>	Critical to quality
<b>CDF</b>	Cumulative distribution function
<b>CEO</b>	Chief executive officer
<b>CFM</b>	Continuous flow manufacturing
<b>CFO</b>	Chief financial officer
<b>CI</b>	Continuous improvement or confidence interval
<b>CL</b>	Center line in an SPC chart
<b>COGS</b>	Cost of goods sold
<b>COPQ</b>	Cost of poor quality

<b>COQ</b>	Cost of quality
<b>COS</b>	Cost of sales
<b>Cp</b>	Capability index which shows the process capability potential but does not consider how centered the process is.
<b>Cpk</b>	Capability index used to compare the natural tolerance of a process within the specification limits. Cpk has a value equal to Cp if the process is centered on the nominal; if Cpk is negative, the process mean is outside of the specification limits; if Cpk is between 0 and 1 then the natural tolerances of the process falls outside the spec limits.
<b>CRP</b>	Capacity resource planning
<b>CTC</b>	Critical to cost
<b>CTD</b>	Critical to delivery
<b>CTI</b>	Cycle time interval
<b>CTIi</b>	Cycle time interval for part i
<b>CTB</b>	Critical to business
<b>CTP</b>	Critical to process
<b>CTQ</b>	Critical to quality
<b>CUSUM</b>	Control chart which plots the cumulative deviation of each subgroup's average from the nominal value.
<b>CV</b>	Coefficient of variation
<b>CVA</b>	Customer value added

## D

<b>D chart</b>	Demerit chart
<b>DC</b>	Distribution center
<b>DF</b>	Degrees of freedom
<b>DFM</b>	Design for manufacturability
<b>DL</b>	Direct labor
<b>DMDi</b>	Demand for part i
<b>DFSS</b>	Design for six sigma
<b>DMAIC</b>	Define, measure, analyze, improve, control
<b>DMEDI</b>	Define, measure, explore, develop and implement
<b>DOE</b>	Design of experiments
<b>DOF</b>	Degrees of freedom
<b>DPM</b>	Defects per million
<b>DPMO</b>	Defects per million opportunities
<b>DPO</b>	Defects per opportunity
<b>DPU</b>	Defects per unit
<b>DSO</b>	Days sales outstanding

## E

<b>ECN</b>	Engineering change order
<b>EDI</b>	Electronic data interchange
<b>EH&amp;S</b>	Environment, health and safety
<b>EMEA</b>	Error modes and effects analysis
<b>EOQ</b>	Economic order quantity
<b>ERP</b>	Enterprise requirements planning
<b>EV</b>	Equipment variation

<b>EVA</b>	Economic value add	
<b>EVOP</b>	Evolutionary operations	
<b>EXITS</b>	Process throughput (units/time)	
		<b>F</b>
<b>FG</b>	Finished goods	
<b>FMEA</b>	Failure mode and effects analysis	
<b>FPO</b>	Firm planned order	
		<b>G</b>
<b>G</b>	Number of subgroups	
<b>Gage R&amp;R</b>	Gage repeatability and reproducibility	
<b>GAP</b>	General accounting principles	
<b>GB</b>	Green Belt	
<b>GPS</b>	Group problem solving	
		<b>H</b>
<b>Ha</b>	Alternative hypothesis	
<b>Ho</b>	Null hypothesis	
		<b>I</b>
<b>IDL</b>	Indirect labor	
<b>IS</b>	Information systems	
<b>IT</b>	Information technology	
		<b>J</b>
<b>JIT</b>	Just in time	
		<b>K</b>
<b>KCA</b>	Knowledge centered activity	
<b>KPIV</b>	Key process input variables	
<b>KPOV</b>	Key process output variables	
<b>KSF</b>	Key success factors	
		<b>L</b>
<b>LCL</b>	Lower control limit (in SPC)	
<b>LSL</b>	Lower specification limit	
<b>LSS</b>	Lean Six Sigma	
<b>LT</b>	Lead time	
		<b>M</b>
<b>m</b>	Mu, population true mean	
<b>MIS</b>	Management information systems	
<b>MPS</b>	Master production schedule	
<b>MRO</b>	Maintenance and repair	
<b>MRP</b>	Material requirements planning	
<b>MRPII</b>	Material resource planning	
<b>MS</b>	Mean square	
<b>MSA</b>	Measurement systems analysis	
<b>MTBF</b>	Mean time between failure	
<b>MTBF</b>	Mean time between failures	
<b>MTTF</b>	Mean time to fail	

**N**

<b>n</b>	Sample size
<b>NGT</b>	Nominal group technique
<b>NOPAT</b>	Net operating profit after tax
<b>np (chart)</b>	SPC chart of number of nonconforming items
<b>NVA</b>	Non-value add

**O**

<b>OE</b>	Owners earnings
<b>OEE</b>	Overall equipment effectiveness
<b>OF</b>	Order frequency
<b>OP</b>	Operating profit
<b>OSHA</b>	Occupation Safety and Health Administration
<b>OTD</b>	On-time delivery

**P**

<b>P</b>	Probability
<b>p (chart)</b>	Control chart of the proportion of defective units (or fraction defective) in a subgroup. Based on the binomial distribution
<b>P Value</b>	The probability of making a Type I error.
<b>P/T</b>	Precision to tolerance ratio
<b>PAT</b>	Profit after tax
<b>PC</b>	Production control
<b>PCE</b>	Process cycle efficiency
<b>PLT</b>	Process lead time
<b>PD</b>	Product development
<b>PDF</b>	Probability density function
<b>Pi</b>	Processing time per unit for part i
<b>PIP</b>	Project in process
<b>POU</b>	Point of use
<b>Pp</b>	Performance index (AIAG I995b) (calculated using "long-term" standard deviation)
<b>PP&amp;E</b>	Plant property and equipment
<b>Ppk</b>	Performance index (AIAG 1995b) (calculated using "long-term" standard deviation)
<b>PPM</b>	Parts per million (defect rate)
<b>PPV</b>	Purchase price variance
<b>PRI</b>	Production Rate for Part i

**Q**

<b>QC</b>	Quality control
<b>QFD</b>	Quality function deployment

**R**

<b>R</b>	Range (in SPC)
<b>r</b>	Number of failures, correlation coefficient
<b>R&amp;D</b>	Research and development
<b>r(t)</b>	System failure rate at time (t) for the NHPP model
<b>R2</b>	Coefficient of determination

<b>Rb</b>	Rate of the bottleneck
<b>RACI</b>	Responsible, accountable, consulted, informed
<b>RCCP</b>	Rough cut capacity planning
<b>RM</b>	Raw material
<b>ROC</b>	Return on capital
<b>RONA</b>	Return on net assets
<b>RPS</b>	Replenishment pull system
<b>RSM</b>	Response surface methodology
<b>RTY</b>	Rolled throughput yield

### S

<b>s</b>	Standard deviation of a sample
<b>sigma</b>	Sigma, population standard deviation
<b>S Chart</b>	Sample standard deviation chart
<b>S&amp;OP</b>	Sales and operations planning
<b>SG&amp;A</b>	Sales, general and administrative
<b>SKU</b>	Stock keeping unit
<b>SL</b>	Service level
<b>SLOB</b>	Slow and obsolete inventory
<b>SMED</b>	Single minute exchange of dies
<b>SOP</b>	Standard operating procedure
<b>SPC</b>	Statistical process control
<b>SS</b>	Safety stock
<b>SS</b>	Sum of squares
<b>SUi</b>	Setup time for part i

### T

<b>TPM</b>	Total productive maintenance, total preventive maintenance
<b>TPS</b>	Toyota production system

### U

<b>u (chart)</b>	SPC chart of number of nonconformities per unit
<b>UCL</b>	Upper control limit (SPC)
<b>USL</b>	Upper specification limit

### V

<b>VA</b>	Value add
<b>VAMS</b>	Value added manufacturing systems
<b>VOB</b>	Voice of the business
<b>VOC</b>	Voice of the customer
<b>VOP</b>	Voice of the process

### W

<b>WACC</b>	Weighted average cost of capital
<b>WCT</b>	Workstation turnover time
<b>WIP</b>	Work in process

### X

<b>Xmr (chart)</b>	SPC chart of individual and moving range measurements
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**Y**

**Y<sub>i</sub>** Yield for part i