Glossary of Terms and Abbreviations for Lean Six Sigma

This glossary describes acronyms Three Letter Abbreviations (TLAs), tools and techniques commonly found in Lean 6 Sigma and its derivatives.

The descriptions here are compatible with our *Body of Knowledge* for all courses from Yellow Belt Foundation up to Master Black Belt

No glossary is ever complete, if there is something missing ask your Instructor

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Term	TLA	Definition
Accuracy		When used in the context of MSA (Measurement System Accuracy) is synonymous with the term “Bias” (the amount of offset generated in readings by the Measurement System See also Bias & Precision.
Action Plans		A plan outlining how an intervention to remove or reduce an identified waste will be achieved.
Activity Ratio	AR	The percentage (%) of CT in which value-added work is performed.
Affinity Diagram		A chart used to collate similar items or views from different subjects or areas.
Agile		A family of Lean Project Methodologies usually characterised as having strong customer/business involvement in the development process and using a form of incremental development.
Andon		An inventory scheduling system often used in Lean to manage JIT distribution. A visual indicator to announce that a station or cell is in need of re-supply. (Andon is a Japanese word for small paper candle lanterns)
As Is		The Current or Baseline state of a process. Used in L6S to establish were we are now and identify areas of potential waste Often illustrated by a VSM. Also see: “To Be”.
Attribute		In this BOK used to identify a characteristic we wish to measure or model in some way (Attribute Data) Binary Data is a special case of Attribute data Sometimes referred to as “Categorical data”
Average		A characteristic of a group of numbers. There are several types of Average: • Mean • Median • Modal
Average Arrival Rate	AAR	A Queue metric – Average amount of elements who join the queue in a given time frame Eg: 3 customers/hour UF = AAR/ASR See also “Elements”, “Utilisation Factor” and “Average service Rate”
Average Inter-arrival Time	AIT	A Queue metric - The inverse of AAR (1/AAR). The average time between people arriving in a queue The AIT for the previous example would be 1/3 = 20 mins In this context, AIT defines TAKT time (they are the same) See also “Elements”, “Utilisation Factor” and “Average service Rate”
Average service Rate	ASR	A Queue metric – How many elements can be serviced in a given time period Eg: We can serve 3 customers/hour UF = AAR/ASR See also “Elements”, “Utilisation Factor” and “Average Arrival Rate”
Balanced Score Card	BSC	A visual representation of project or team performance. Balanced Score cards should be prominently displayed so that everyone can see how the team is performing.
BAR-X	$\overline{X}$	The mean average of a string of values
Batch		A group or series of units.
Bell Curve		See “Normal Distribution”

Belt	WB, YB, GB, BB, MBB	Many organisations (but not all) use a coloured "belt" system to identify different skill levels. Originated in Motorola as one of the Six Sigma team was a martial arts enthusiast. This BOK identifies five skill levels: • White Belt (WB): A basic awareness of aims and principles. • Yellow Belt (YB): A SME, someone who works in the process and understands it well and who has a basic knowledge of simple L6Sigma tools, techniques & philosophy's. • Green Belt (GB): Part time practitioner – Someone who has a team reporting to them and who is responsible for improving an area of the business. GBs will direct and manage YBs & WBs. • Black Belt (BB): Often a full time, sometimes part time expert and coach in L6S. Has better statistical knowledge than GBs and will also be responsible for bigger projects and cross business improvement initiatives. BBs often split into L6S BB (more technically focussed) and Lean BB (more culture change focussed). • Master Black Belt (MBB): A BB with more experience and breadth of knowledge (L6S MBB encompasses both L6S BB and Lean BB areas). To a certain extent WB, YB, GB, BB and MBB are cumulative – in the exams you will be tested on lower belt material!
Benefits Assessment		In project terms a Benefit Assessment is used to see if promised benefits have occurs. In Lean 6 Sigma it is often used after a DMAIC or similar improvement project has ended to see if the promised savings have been delivered. Sometimes known as a "Benefits Review".
Bias		An off-set or movement usually away from the correct value Usually considered in MSA (Measurement System Analysis) as the measuring system often adds Bias to the actual output values (See also Accuracy & Precision)
Board Level Champion	BLC	Ideally one person might be a small group. Holds Board Level responsibility for the progress and value derived for Lean Sigma.
Body of Knowledge	BoK	The definition of a methodology, practice, philosophy or framework, Encompasses and defines all the elements of the subject. In respect to the exams the BOX is the course workbook(s) and any notes given by the Instructor
Boots on the Ground	BOTG	Another term for "Genchi Genbutsu" meaning that Management needs to visit Gemba before making decisions.
Brown Paper (Mapping)		Using Brown (or rolls of paper) to create charts and diagrams – Lean recommends simple low-tech tactile tools over sophisticated solutions.
Brainstorming		A way of producing ideas and concepts from a group. Aims to remove subconscious filters. It includes several variants such as Brain writing, Collective Builds etc.
Buffer		Often used in TOC as well as in L6S. A small amount of inventory placed at strategic places in the process to keep flow moving.

Build-Measure-Learn		The Lean Startup development cycle.
Business as Usual	BaU	A project Management term that describes the repeatable, normal activities which a business performs to justify its existence.
Capable Process		In Lean 6 Sigma a process which satisfies the requirements of its customers A process in which the process variance is less than and within the tolerance range set by the Customer
Cause & Effect Diagram		A tool for identifying the possible sources of variation for a given output or process. Used to identify the various causes for an effect. *Also known as Fishbone or Ishikawa Diagrams.*
Cell		Two meanings in Lean: 1. A physical part of the Process. 2. The people who perform the work in part of a process. Forms part of the philosophy of Lean Management. *Also known as a "Work Cell".*
Central Limit Theorem	CLT	A statistical theorem. Says that for most cases, regardless of the shape of a distribution, the distribution of sample averages drawn from this distribution will be appro ximately normally distributed. The practical effect of this is that if a sample is larger than 30 plots you can assume a Normal Distribution and not be too far out.
Champion		Someone in the business with authority to make sure that (often political) barriers to Lean Thinking are swiftly dismantled.
Champion Network		A hierarchical network of Champions with different authority levels. At the apex is the Board Level Champion (BLC).
Constant, Noise, Experimental	CNX	The way we partition the input variables on a cause & effect diagram. Constants require standard operating procedures.
Common Cause Variation		Expected/natural/normal variation from a system when there is no special cause variation present.
Consumer		*See "External Customer"*
Control Charts		A chart illustrating variance about a mean. Control charts can be used to see if a result is statistically significant (needs to be investigated) or within the common variation. The terms used are "common causes" – within accepted variance, or "special causes" – outside what would normally be expected.
Control Limits		An SPC concept denoting the values between which a very high percentage of naturally occurring process variation will lie.
Control Plan		A plan which identifies the process variables which should be monitored during the control phase to determine if the process is slipping "out of control" in any way.

Cost of Conformance	COC	The cost of getting quality right first time in Planning/Inspecting etc…
Cost of Doing Nothing	CODN	If no process improvements were made, this is the cost, cycle time and quality you would expect your process to be.
Cost of Quality	COQ	The difference between the actual cost of a product or service and what the reduced cost would be if it was made (or performed) without any waste.
Cost of Poor Quality	COPQ	The cost associated with scrap, rework, etc. The five main categories are: 1. Internal failure costs 2. External failure costs 3. Appraisal costs 4. Prevention costs 5. Opportunity costs
Cost of non-Conformance	CoNC	The cost of NOT getting quality right 1st time. The cost of fixing the problem when a defect is produced.
Customer		Someone who wants something from a process. *See VOC*
Critical Customer Requirements	CCR	Often used as an alternative to CTQ.
Critical to Customer	CTC	Measures of performance that is critical to your customer. These can be seen on the output of an IPO Diagram.
Critical to Quality	CTQ	Measures of performance that is critical to quality of your process. These can be seen on the output of an IPO Diagram.
Customer/ Feature diagram		A simple diagram illustrating individual customers and their preferences for a product or service See also Kano, Affinity and Feature Consolidation diagrams
Cycle Time / Elapsed Time	CT	The time it takes to perform all the work needed to create a product – this includes the time working on it and the time it is not being worked on (productive and non-productive time). *See also Lead Time & Unit Time*
Daily Stand-up		A technique used by self-directed teams to help manage and plan the work. It should happen frequently (ideally every working day) with the whole team assembled round the Kanban Board or other information radiator. Each team Member “reports in” to the rest of the team.
Data Collection Plan/ Data Check Sheets		A plan showing how data is to be collected should include times, batch /sample sizes, accuracy required etc. A robust Data Collection plan is fundamental to analysing a process for errors.
Data Collection Form		A sheet used to collect the actual data collected (as specified by the Data Collection Plan).
Data Set		The collection of all the data from a sample
Defect		Something that would make a customer reject a product or service.
Defective		A Unit with at least one defect.

Defect Opportunity		A chance to create a defect.
Defensive Design		The deliberate design of a system to minimise of prevent failure occurring (equivalent to Poka Yoke).
Design For Six Sigma	DFSS	An umbrella philosophy which describes what a project methodology needs to provide to create a new process from scratch with a high level of process sigma.
Define, Measure, Analyse, Improve, & Control	DMAIC	A process or methodology for process improvement devised by Motorola and expanded by General Electric. The core improvement methodology of Six Sigma
Design of Experiments	DOE	A systematic method for varying the inputs of a process in order to observe the corresponding changes in the output(s). The result is information on the relationships of inputs to outputs.
Defects Per Million Opportunities	DPMO	A measure of quality for attribute data, used for benchmarking. A Six Sigma process will have no more than 3.4 dpmo.
Defects Per Unit	DPU	A measure of quality for attribute data.
Discrimination		A MSA/ Gauge term describing what the smallest value a Gauge can measure. Eg “The discrimination of this sensor is 1DegC”
Disruptive Change		An increasingly common term describing a significant change to a market or group of services. The introduction of the Apple IPhone is one example. *See also “Linear Change”*
Dynamic Systems Development Method	DSDM	An Agile Methodology very useful for large and/or compliance projects.
Effort/Impact Grid		A simple quartile grid which can be used to Identify the most attractive solutions for a problem. Often used to help choose the best course of remedial action to mitigate a waste.
Elapsed Time		Synonymous with Cycle Time (CT)
Elements		Part of a queuing system – elements form the queue waiting for service. Elements could be people or products *See also “Server”*
Emotional Cycle of Change	ECOC	A model which describes the states which a team passes through on the journey from agreeing to the high performance Challenge to meeting it. Can also be used to illustrate the behaviour of organisations in adopting Lean Thinking
Empirical Rule		Also known as the “68-95-99,74” rule. Describes the proportion of samples that we would expect to find bounded by 1,2, 1nd 3 SD from the mean in distributions which follow the Normal Curve. Can be used to generalise population probabilities from a sample *See also “Normal Distribution”*
External Customer		Often used (as it is in this BoK) to identify a customer who is outside the organisation, ie someone who actually pays money for a product or service. Synonymous in this BOK with “Consumer”
Failback		Recovery from a failover.
Failover		A graceful (usually automatic) switching to a backup or standby system.

Failure Mode and Effect Analysis	FMEA	A systematic way to look at how a process or product might fail and work to identify says to prevent failures from occurring.
Feature Consolidation Diagram		A simple diagram showing the actual or potential features of a product or service categorised into Basic, Expected and Exciting groups See also Kano, Affinity and Customer/Feature diagrams
Fishbones Diagram		*See Cause and Effect diagram*
First In First Out	FIFO	A Lean technique. Orders/work is processed in the order received. This is effective in none manufacturing environments such as an office.
First Pass Yield / First Time Yield / First Time Quality	FPY/FTY/F TQ	The proportion of units completing a process the first time with no rework, repair or replacement. FPY is usually quoted as a percentage eg FPY=87% The FPY values for multiple stages in a process can be combined (multiplied together) to give a Rolled Throughput Yield (RTY) value.
Frequency		A common term in SPC. The number of identical plots in a population or sample.
Full-Time Equivalent	FTE	A unit that indicates the workload of an employed person (or student) in a way that makes workloads comparable[1] across various contexts. FTE is often used to measure a worker's involvement in a project, or to track cost reductions in an organization. An FTE of 1.0 means that the person is equivalent to a full-time worker, while an FTE of 0.5 signals that the worker is only half-time.
Funnel Metrics		A marketing tool often used in Lean Startup. Customer acquisition consists of a number of steps. Funnels help us understand this process, by visually showing the attrition rate on each step. This allows us to: • Determine what steps are causing customer confusion or trouble • Understand were the biggest losses are • Become aware of bugs, browser issues and other technical nuisances
Gauge		When used in the context of MSA (Measurement System Accuracy) describes the tools or machinery which performs actual measurement (a ruler and a set of scales are examples of a Gauge)
Gauge R&R Studies		A MSA concept which means examining the inaccuracies in the measurement tools and how they are used. The aim is to determine if a Measurement System is accurate enough and to allow for calibration if needed
Gemba		Lean concept. “The real place”, “the place where work is done”, “The shop floor.”

Gemba Walk		A Lean technique. Senior Managers schedule a visit to Gemba with the aim of identifying waste and encouraging its removal. *See also MBWA*
Genchi Genbutsu		Toyota/ Lean phrase often translated as: "Go, Look, See" – always go to Gemba before making decisions. *See also "Boots On The Ground"*
Go – Look – See		A translation of the term "Genchi Genutsu".
Group Development Model	GDM	A model of group interaction devised by Bruce Tuckman Describes four stages (possibly five) which people go through when they come together to perform a common task or challenge. The stages are: 1. Forming 2. Storming 3. Norming 4. Performing 5. (Adjourning)
Growth Engine		A Lean Start-up term describing the method used to attract and retain customers. *Also known as "Model of growth"*
Heijunka		Lean concept. Process levelling (eliminating peaks and troughs).
Histogram		A SPC chart which breaks down a parameter or statistic into categories and displays the frequency of each category.
House of Quality	HOQ	An advanced Lean 6 Sigma techniques used to capture and contrast customer requirements for a product or service which what that product or service actually provides (or will provide).
High Performance Challenge	HPC	The description of the work or target which a HPT needs to achieve.
High Performing Team	HPT	A team which is highly effective and surpasses expectations. An objective of a Lean Manager is to craft and sustain their staff as High-Performance Teams.
Hoshin Kanri		Lean concept. Policy Deployment – making sure that everyone understands the corporate vision and senior management get feedback if the vision is not being realised.
Individual Moving Range Chart	IMR	A control chart for variable data with individual measurements (no subgroups).
Innovation Accounting		A Lean Start-up term. An alternative to product or sales-based milestones thought to be more descriptive in start-up companies.
Instrumental Success Factor	ISF	Something (a "factor") which needs to be provided or in place before something else can succeed or go ahead. Eg: an ISF for a Kaizen is management authorisation and commitment of resources.
Internal Customer		Someone in the same organisation who needs an output from an internal process, often used as an equivalent of VOB.

Inventory		Lean concept. Generally, goods and material in stock however Lean attaches a negative connotation to Inventory as “undesirable material” See also WIP.
Input - Process - Output Diagram	IPO	A diagram for describing all activities as a process, showing the inputs (sources of variation) and outputs (measures of performance) of a process.
Ishikawa Diagram		*See Cause and Effect diagram*
Jidoka		Lean technique – autonomation. Semi-automations of individual machines or systems.
Journal of Quality Technology	JQT	A well respected journal for Quality professionals such as Lean 6 Sigma operators. The significance for this BOK is that the JQT published rules to identify potential special cause on control charts
Just In Time	JIT	Producing or providing product or service just before it is needed.
Kaizen		Often translated as “Continuous Improvement”. An umbrella term covering several areas typically: • An individual philosophy. • A team based improvement methodology (Kaizen Event/ Kaizen Blitz)
Kaizen Event/ Kaizen Blitz/ Kaizen Burst		A short, informal version of Formal Kaizen typically practiced by more mature Lean organisations (A Kaizen Blitz might take as little as a couple of hours).
Kanban/ Kanban Card		Kanban is a system to control the logistical chain from a production point of view and is an inventory control system. Kanban was developed by Taiichi Ohno, at Toyota. Kanban has grown from these roots and a key element is a Kanban Board. *See also “Andon” and “Three Card System”*
Kanban Board		A physical or electronic system to visualise and/or control work- flow, including WIP if desired. Often used to manage Agile Projects but can be used in the workplace to manage and improve processes.
Kano Diagram/ Analysis		A visual indication of features in a product contrasting the cost of the feature again how much satisfaction it gives the customer.
Key Performance Indicator	KPI	Measures of performance of your process. These can be seen on the output of an IPO Diagram.
Leadership Style		The approach of a Manager to leading a Team Three types, Autocratic, Democratic and Semi-Democratic.
Lead Time	LT	The time it takes a customer to receive an order (from placing the order to delivery) – The Customer experience. *See also Cycle Time & Unit Time*
Lean		A philosophy which focusses on doing more with less – based on TPS.
Lean Metrics		See “Metrics”

Lean Start-up		A Lean way for developing and managing a disruptive change or developing a new product or service efficiently when you are not sure of the market.
Lean Thinking		The application of Lean. Broadly speaking consists of a philosophy, a set of tools and techniques, and a methodology for improvement.
Learning Milestone		A Lean Start-up term. A significant point in the stage of a potential product. *See also "Innovation Accounting"*
Linear Change		The evolutionary improvement of an existing product or service See also "Disruptive Change".
Lower Control Limit / Upper Control Limit	LCL & UCL	Limits used to determine whether a process is stable, calculated from the data and usually set at +/- 3 standard deviations.
Lower Specification Limit / Upper Specification Limit	LSL & USL	The bounds of acceptable values for a given product or process parameter, as specified by the customer.
Managing By Wandering Around	MBWA	A management technique. Managers get out into Gemba and make themselves informally available to staff.
Mean Average		The sum of a series of values divided by the number of values See also Median & Modal.
Median Average		The mid-point value amongst a set of values See also Mean & Modal.
Measles Diagram		A drawing or mock-up of a form or product on which defects are recorded. The aim is to build up a picture of where the majority of defects can be found.
Metrics		Defines something of interest which can be measured. Metrics often "A precise description of what is to be measured including numerator, denominator, inclusions and exclusions"
Mistake Proofing		*See "Poka Yoke"*
Modal Average		The mid-point value amongst a set of values. *See also Mean & Median*
Muda		Japanese word often translated as "waste".
Mura		Japanese word often translated as "variation".
Muri		Japanese word often translated as "excess physical burden".
Must have, Should have, Could have, or Won't have for now	MoSCoW	A means of prioritising features or tasks used mostly as an aid to planning.

Moments of Truth	MoT	A point in time when a Customer forms an opinion about a Supplier, Product or Service See also “Touch Points”
Movement Diagrams/ Spaghetti Diagrams		A visual way of tracking the way that a piece of work flows through a process or system.
Measurement System		The people, tools and process of measuring a system to determine how it performs (an essential ingredient of Process Capability)
Measurement System Analysis	MSA	Identifying the characteristics of the Measurement Systems (people and instruments or Gauges) which are used to report on how effective a system or process is. The output from a Measurement System forms the basis of understanding how well it meets the needs of the Customer and distortions here, if not recognised and accounted for, can have serious consequences.
Mean Time Between Failures	MTBF	The average time it takes for a system or unit to break down. For example, a MTBF of 3 days indicates that on average an item will stop functioning every 3 days.
Mean Time To Repair	MTTR	The average time it takes to fix something once it stops functioning.
Model of Growth		*See “Growth Engine”*
Muda		Translates as “Waste”.
Normal Distribution		A probability distribution curve most often found in nature when the characteristic of interest can be measured using the *continuous* data type Symetrical about the mean and characterised by the mean and SD. It is sometimes called the “Bell Curve”
Overall Equipment Effectiveness	OEE	OEE measures how effectively TIME is used to produce a quality product. Represents the equipment efficiency during a production run. How well a processing unit performs relative to its designed capacity. Consists of three sub metrics – Availability, Performance, and Quality. *See also TEPP*
One Best Way		The optimum way to perform a task – often documented in OTGIs or SOPs.
On The Ground Instructions	OTGI	Simple (typically hand drawn) instructions aimed at improving the process.
Parato Analysis/ Parato Diagram		An SPC chart which segments a data variable into groups or ranges then stacks the ranges by frequency count. Can be used to prioritise remedial actions.
Pathfinder Group		A team or part of an organisation used to demonstrate that Lean Thinking is effective and to act as a learning Tool and Beacon.
Parato Priority Index	PPI	A ranking formula used to help determine which of a number of possible alternatives is most useful.
Payoff Matrix		A prioritisation tool contrasting two features of a group af potential solutions
Plan Do Check Act	PDCA	An improvement methodology devised by Dr W Edwards Deeming.
Plots		Samples or readings taken.

Piece / Piece of Work		A term derived from manufacturing denotes a unit that a process creates.
Poka Yoke		A Lean technique translates as “Mistake Proofing”. A way of preventing errors and mistakes from occurring.
Population		The full set of everything we wish to investigate e.g. The UK population / The number of sweets manufactured today.
Precision		When used in the context of MSA (Measurement System Accuracy) means the amount of extra variance added to reading by the Measurement System See also Bias & Accuracy
PRINCE2	P2	**PR**ojects **In** a **C**ontrolled **E**nvironment 2. Describes a robust, flexible, tailorable control and management framework for projects.
Prioritisation Tools		In this BOK the collective name for a group of tools which allow groups to identify the most favoured solutions from a number of candidates. See also Pay-off matrices, Weighting through voting, Weighting with evaluation criteria, and Pugh Matrix
Problem Solving Framework		A structured way of assessing a problem and identifying a potential solution.
Probability Distribution		A mathematical/Statistical “Boundary” showing the likelihood of picking a specific value at random from the general population
Process		A workflow used in L6S to describe how a piece of work evolves Any activity, process or procedure that transforms a number of input(s) into a number of output(s).
Process Capability Potential	Cp	Measures the potential capability of a process without considering centring. A Six Sigma process will have a Cp value of 2 or larger.
Process Capability – Actual	Cpk	Measures the actual capability of a process, taking into account the centring of the process. A Six Sigma process will have a Cpk value of 1.5 or larger.
Process Flow	PF	A flowchart listing the process steps in order.
Process Mapping		Used to graphically illustrate a process. Value Stream Maps use a process Map to display areas of potential waste.
Process Sigma		An indicator of the efficiency of a process (how many defects it creates). Derived from Six Sigma often shortened to just “Sigma” (eg “3 Sigma”, “6 Sigma”).
Process Stapling		A Lean technique in which a process is followed step by step, end to end, so that an understanding can be gained.
Programme		A series of linked projects. The BOK view part of the BB/MBB skill sets as being Programme Managers but does not go into much detail.
Project		A temporary endeavour put together to effect an desired change.
Project Manager	PM	Someone who is responsible for the day-to-day running and control of a project. PMs can be full or part time. Different sizes of projects require different PM skills and talents. The BOK views part of the GB, & BB skill set as including some level of PM capability although it does not focus on Project Management as such. GBs are viewed as managing informal, simple, low risk projects. BBs & MBBs go up a couple of levels The BOK advises that YBs should be considered as capable of running small projects/initiatives.

Project Methodology		A way of running a project there are many different methodologies each with advantages and disadvantages. The BOK mentions DMAIC, Agile, Scrum, DSDM, PRINCE2, 3Cs, 8Ds, Plan Do Check Act, Kaizen. *See also "DFSS"*
Pugh Matrix		A consensus building diagram for comparing several potential options against customer needs. Designed to bring forth a "best of breed" solution. In this BOK classed as a *Prioritisation Tool*
Pull		A Lean technique which advocates only producing new stock to replace stock which has been sold or discarded. The aim is to minimise Inventory or WIP. *See also "Push"*
Push		A manufacturing and scheduling technique featuring scheduled deliveries usually of large batches regardless of whether the receiving station is ready for them or not. Push often leads to a build-up of Inventory which is considered a very bad thing in Lean 6 Sigma. The "opposite" of Pull.
Quality Function Deployment	QFD	A systematic process for integrating customer requirements into every aspect of the design and delivery of products and services. The main component of QFD is the HOQ (House of Quality).
Queue		Part of a queuing system – a series of elements waiting for service. Elements could be people or products *See also "Server" and "Elements"*
Queue(ing) Theory		The description and modelling of the characteristics and behaviours of Queues. A Queue consists of a number of *Servers* and a number of *Elements* waiting to be satisfied *See also Server, Elements=, Queue,AAR, ASR, Inter-arrival time*
Random Variables		Any characteristic or value which is of interest or is to be examined Variables can be represented in several ways: • Count (number of items) • Measurement (how long an item is) • Categorical (gender, eye colour)
Range/ Spread		In this BOK we treat them as the same however some people attach specific and distinct meanings to each The difference between the maximum and minimum values expressed either as two values ("20-30 years") OR as the difference between the maximum & minimum values ("10 years")
Rapid Action Team	RAT	A cross-discipline team put in place usually to solve a known problem (other names are SWAT team or Tiger Team).
Random Sample		In Statistics, a Random Sample is a subset of the population in which every member of the population has an equal chance of being drawn. Many samples are not truly random and all samples differ from their population to some degree
Regression		A statistical way of indicating the likelihood of two variables being associated in some way. Note regression does not guarantee causation.
Repeatability		An MSA term identifying the variance of individual operators *See also Reproductability*
Reproducibility		An MSA term identifying the variance of of individual operators *See also Repeatability*

Requirements		Defines what a customer wants from a process. Often called Customer Requirements. *See also CTQ, CCR*
Responsible, Accountable, Consulted, Informed	RACI	A stakeholder management technique used to identify the communication needs of stakeholders.
Risk		In this BOK risk is used to mean a threat to a quality initiative from succeeding in whole or in part.
Risk Priority Number	RPN	In FMEA, this is the column which indicates high risk process steps of a design. It is equal to Severity * Occurrence * Detection.
Rolled Throughput Yield	RTY	The likelihood of making it through all steps in the process, right the first time. Calculated by multiplying all the process steps First Pass Yield FPY) eg a process has two stages each with a FPY of 90%, RTY for the process is 81% (90%*90%).
Root Cause Analysis	RCA	A means of finding the true cause (instead of a symptom) of a problem. There are several ways of performing RCA. *See also "5Ys" and "Cause & Effect Diagram"*
Rule of Thumb	ROT	This is not exact, but an estimate. General statements that will work most of the time.
Run Chart		A SPC chart. A "simplified" Control Chart usually with a fixed SD and mean. Often used to monitor processes to see if they are falling away from optimum performance.
Sample		A portion of the population e.g. An hours' worth of sweets *See also Random Sample*
Scatter Diagrams		An SPC technique used to visually contrast two variables – this can be used with regression techniques.
Schewart Charts		A particular type of Control Chart. Named after *Walter Schewart* who originated the idea Note: not all Control Charts are Schewart Charts
Scrum		An Agile project methodology suitable for small rapid development projects (DSDM can be considered a more complex version of Scrum).
Segmentation		A VOC technique – refers to identifying specific customer needs (voices).
Server		Part of a queuing system – elements form the queue waiting for service which is provided by a Server. Elements could be people or products. *See also "Elements"*
Service Characteristics		Part of Queue Theory The arrangement used by servers & queues
Service Discipline		The rule, or set of rules, specifying which of the waiting queue elements is next to receive service
Sigma		Letter of the Greek alphabet often used in statistics and Six Sigma. Has several meanings in this BOK: • Upper case: sum of a series of values • Lower case: often used as the symbol for Standard Deviation alternatively the short form of Process Sigma
Silo Mentality Siloed Siloing		The natural "tribal" inclination of people to focus on their own team or part of the process to the exclusion of everything else. Lean Thinking seeks to combat this with the concept of "Focus On the Customer" or VOC

Single Minute Exchange of Dies	SMED	A Lean technique focussing on reducing the changeover time within a process. The original goal at Toyota was to swap between manufacturing car models in a **single number of minutes** however in practice it means swapping between batches and tasks as quickly as possible.
Single Piece Flow		A Lean technique which advocates working in the smallest possible batch (a single piece).
Six Big Losses		Six key areas in a process to examine for waste.
Six Sigma		Six Sigma is a philosophy, methodology and a set of tools to help companies continually improve their processes. Devised by Motorola if focuses on reducing variation. Key areas are SPC, Belting grades, DMAIC and FEMA.
Special Cause Variation		Variation in a system which has an assignable cause (a reason for it). *See also Common Cause Variation*
Specification Limits		The upper and lower values of a product or process output which a customer will accept (part of VOC): • Lower Specification Limit (LSL): minimum value • Upper Specification (USL): maximum value *See also Control Limits*
Spread		See Range
Square Wave		An option feature of a VSM which is used to illustrate & compare VA & NVA time in the process being mapped.
Standard Deviation	STDDEV/ SD	An indicator of the variance within a processes. Deviation is the distance of a plot from its Mean Average, SD can be thought of as the average deviation of all the plot deviations (this is a simplified explanation suitable for Six Sigma).
Standard Operating Procedure	SOP	Details on how a factor should be held constant for a process. SOPs help eliminate unnecessary variation. SOP is often considered to be a more formal version of OTGIs.
Standardised Work		Also called “Best of The Best” The agreed best way to perform a task – everyone accepts and follows this
Statistical Process Control	SPC	A Six Sigma methodology for studying a process using statistical modelling (Control Charts, Perato Charts, Histograms, Pie Charts).
Subject Matter Expert	SME	People that are experienced and experts in the process. Often Yellow or White belts (the BOK specifically equates SMEs to YBs). The Lean assumption is that people who work in the process doing the actual work (and/or directly managing them) are the true SMEs of a business
Sum	□	The value of a series of values added together. Represented in Statistics and this BOK as the upper case Greek letter Sigma
Supermarket		A small amount of inventory placed at critical parts of the process to prevent stoppages due to production problems. Supermarkets should have content levels defined and they should be kept stocked to that level. *Often known as a “Buffer” (especially in TOC)*
Supplier, Input, Process, Output, Customer Diagram	SIPOC	This is similar to the IPO only it expands to include the suppliers to the process and the customers. This can be used to show the process Value Stream and/or a macro flow of the entire process.
Swim Lanes		A way of segmenting process maps with horizontal lines identifying individual responsibilities.

Takt Time		The speed which products need to be produced to satisfy customer demand. Works well in environments of high Task repeatability. SOP and Standardised Work links to this concept.
Task Cell		A specific area in the workplace where everything necessary to perform a specific task is available. A term used by this BOK to distinguish between a simple Task based area and the concept of Work Cells
Theory of Constraints	TOC	The study of looking for where a process is constrained (commonly called the Process Bottleneck).
Three Letter Abbreviation	TLA	Synonymous to “acronym” or “abbreviation”.
Three Bin System		Technically a way of controlling *flow* NOT *inventory.* Often used to implement the Kanban system
Tiger Team		*See Rapid Action Team (RAT)*
To Be		The future or proposed, or Target state of a process. Used in L6S to show how a process could look if waste (or part of the waste) was removed. Often illustrated by a VSM. *See also “As Is”*
Tolerance/ Tolerance Range		In L6S usually taken to mean the range of values of an output which a customer would accept (USL-LSL).
Total Effective Process Performance	TEPP	Represents the total equipment utilisation. Maps OEE against a calendar period hours such as 24 hours, 365 days etc. *See also OEE*
Total Productive Maintenance	TPM	A Lean framework to ensure that unplanned stoppages are minimised. Supports other Lean philosophies such as JIT.
Touch Points		A point in a process were Customers interact with it MOTs occur here Some processes have lots of Touch Points some have none *See also “Moments Of Truth”*
Toyota Production System	TPS	A framework and philosophy developed by Toyota which became the foundation for Lean/ Lean Thinking. Most recently codified in “The Toyota Way”.
Toyota Way		The current description of the philosophy and framework behind TPS. Codified in 2001 by Fujio Cho (President of Toyota Motor Co) The Toyota Way is based on two central concepts: 1. Continuous Improvement 2. Respect for People Amongst other elements it describes 4 key practices (4Ps) and 14 principles.
Tribal Tribalism		The inclination of people to come together into groups and view anyone not in the group as an “outsider” or even an “enemy”. A Lean Manager needs to take steps to prevent this.
Undesirable Effect	UDE	An effect on the process that is not desired or wanted, i.e. scrap, rework, etc.
Unit		A product or piece of work.
Upper Control Limit	UCL	*See Control Limits*

Upper Specification Limit	USL	*See Specification Limits*
Unit Time	UT	The productive (waste free) time spent working on a product or part of a process. *See also CT*
Utilisation Factor	UF	A Queue metric – shows how efficient a queuing system is and how prone it is to expand UF = AAR/ASR *See also "Average Arrival Rate" and "Average service Rate"*
Value / Value Add / Business Value Add / No (or None) Value Add	VA NVA BVA	Value : something perceived by the customer as worthwhile (they are willing to pay for it). Value Add (VA): Valuable in the eyes of a consumer or external customer. Business Value Add (BVA): Valuable in the eyes of the Business or internal customer. No (or None) Value Add (NVA): Neither Business or Customer wants this – WASTE.
Value Stream Map	VSM	A chart of a process showing were Value is derives and Waste occurs.
Vanity Metrics		A Lean Startup term. Metrics which we use to convince ourselves all is well but give a false picture of progress.
Variables		*See Random Variables*
Variance		The amount of variation inside a population/sample. Variance can be shown several ways: • Standard Deviation • Range
Voice of the Business	VOB	These measures usually point to key business strategies such as cost metrics, scrap, process delays etc.. What the business wants from a process.
Voice of the Customer	VOC	What the customer wants from the process. In SPC, these are usually measured in the upper and lower specification limits from the customer.
Voice of the Process	VOP	The outputs and ranges provided by a process. In continuous data, the mean and the standard deviation.
Waste		Lean concept. Waste is something a process does which adds not value to a product in the eyes of a customer. *See also Value & Muda*
Water Spider (or Mizusumashi)		The Water Spider which acts as a line support function to handle occasional work that interrupts a standard process (for example relief work and recurring-but-not-every-cycle tasks). It is a lean manufacturing term referring to a person in a warehouse or production environment who is tasked with keeping work stations fully stocked with materials, thus controlling the continuous flow of productivity.
Weighting through voting		A prioritisation tool used to identify the front runners from a number of candidate solutions based on SMEs opinions of each solution. *See also Prioritisation tools*
Weighting through voting with evaluation criteria		A prioritisation tool used to identify the front runners from a number of candidate solutions based on SMEs opinions of each solution and with critical features identified and "scored" by the customers. *See also Prioritisation tools*

What's in it For Me?	WIIFM	Building a vested interest to all involved in the process.
Work-Cell		Two meanings in Lean: 1: A physical part of the Process 2: The people who perform the work in part of a process Forms part of the philosophy of Lean Management. Also known as a "Cell". This BoK distinguishes between the terms "Work Cell" and "Task Cell"
Work In Progress	WIP	Parts and uncompleted goods throughout the process. Often synonymous with "inventory".
Yield		Equivalent to First Time Yield or First Time Quality (FTQ). A measure of how much product or output is produced by a process within the customers' tolerance without remedial work.
3-Bin System		A popular implementation of Kanban distribution control. Comprises of 3 parts bins – one in the shop floor, one in the stores and one being assembled by a supplier. Each bin has a *Kanban Card* which is exposed as the contents of the bin are consumed. When a card is exposed it triggers a resupply from upstream *See also "Andon" and "Kanban Card"*
3Cs		A methodology for improving a process the 3 "Cs" stands for: Concern, Cause, and Cure/Countermeasure. A simpler framework than DMAIC often favoured in Lean only environments.
3Mu's		Muda, Mura and Muri are three Japanese words that roughly translate into Waste (non-valuing adding), Variation and Excess Physical Burden. Basic concepts of TPS/ Toyota Way.
4Ps		The four key areas used in the Toyota Way to guide employees into the culture and practice of "Lean Thinking": The 4PS: Philosophy, Process, People, Problems
5S		A technique for organising and de-cluttering the workplace.
5Ys		A Root Cause Analysis tool in which we start with a problem and keep asking "Why" (typically about 5 times) to get to the root cause.
6 Big Losses		6 key areas of a process were waste often occurs.
7 Wastes of Lean		Seven key types of waste which processes display. The definitions vary slightly depending on the environment. The seven wastes are often expanded to include Human Intellect.
8 Disciplines	8Ds	Devised by Ford Motor Co, the 8Ds highlight 8 essential activities which every change initiative should perform.
14 Principles		The principles described in "The Toyota Way".