

Glossary of Acronyms, Abbreviations, and Definitions

Acronyms/Abbreviations

ANOVA	Analysis of Variance
ASQ	American Society for Quality
BB	Black Belt (Certified CPI Expert)
BLI	Budget Line Item
CLIN	Contract Line Item Number
COI	Conflict of Interest (Contract Clause)
CONOPS	Concept of Operations
CPI	Continuous Process Improvement
DC	Deployment Champion
DFARS	Defense Federal Acquisition Regulation Supplement
DMAIC	Define, Measure, Analyze, Improve and Control (Process Phases)
DMAICV	Define, Measure, Analyze, Improve, Control and Validate
DMADV	Define, Measure, Analyze, Design, Validate/Verify
DPMO	The number of defects per million opportunities.
DMS	Deployment Management System
DOE	Design of Experiments
DPA	Direct Product Account
ETWG	Education and Training Working Group
FAR	Federal Acquisition Regulation
FFP	Firm, Fixed Price
GB	Green Belts (Certified CPI Journeyman)
HICVS	High Impact Core Value Stream
ID/IQ	Indefinite Delivery/Indefinite Quantity Contract
LSS	Lean Six Sigma
MBB	Master Black Belt (Certified CPI Experts Trained to Train Other Experts)
MGPP	Multi-Generation Project Plan
N/A	Not Applicable
NAWC	Naval Air Warfare Center
NAE	Naval Aviation Enterprise
PCO	Procuring Contracting Officer
PS	Project Sponsor
SOP	Standard Operating Procedure
SSA	Source Selection Authority
SSEB	Source Selection Evaluation Board
SSP	Source Selection Plan
TG	Tollgate
TOC	Theory of Constraints
TTL	Transformation Team Leaders
TTT	Train-the-Trainer
TWG	(Information Technology) Tools Working Group
YB	Yellow Belts (Trained CPI Project Team Members)

Definitions

Affinity diagram: A tool that helps organize language data into related groupings.

Analysis of Variation (ANOVA): A basic statistical technique for analyzing experimental data. It subdivides the total variation data set into meaningful component parts associated with specific sources of variation in order to test an hypothesis on the parameters of the model or to estimate variance components. There are three models: fixed, random, and mixed.

Balance chart: A bar graph representation of weighted average cycle times of each process in a group (from cycle time analysis) used to highlight bottleneck processes and visually represent the balance of work in a group.

Benchmarking: A method for identifying world-class products, processes, or services and acquiring a deep understanding of how and why they work.

Benefit: Something that promotes the organizations well being. The objective of LSS is to accrue benefits as a result of completing process improvement projects. Benefits may include increased morale or customer satisfaction, reduced cycle time, increased quality/safety and financial savings. Benefits categories include Type 1, 2 and 3:

- **Type I Benefit:** Hard savings readily identified to DoN appropriation budget line items (BLIs) for return to DoN/DoD for recapitalization. Examples: Elimination of non-labor cost; reduced contractor support services (CSS); elimination of whole work-years and associated billets.
- **Type II Benefit:** Resources are freed-up that may be re-assigned to other value added work. Example; Reduction in the amount of hours necessary to produce a product (partial work-year reduction where you cannot reduce a billet).
- **Type 3 Benefit:** Non-quantifiable/intangible savings. Example: Improved customer satisfaction; improved morale.

Black Belt (BB): A person who leads Lean Six Sigma project teams and who has had in-depth training in Lean Six Sigma techniques. Black Belts work full time on Lean Six Sigma projects. The Black Belt is generally considered to possess the following competencies:

- **Team Facilitation:** Ability to build a successful/cohesive team using development tools, resources, training, goals performance measures and a flexible interpersonal style. Facilitate the completion of team goals.
- **Problem Solving:** Identify present and potential troublesome situations and their causes. Investigate to a level that reveals total impact of the situation. Identify trends and patterns and develop measures to solve or prevent repeat occurrence.
- **Process Orientation/Systems Thinking:** Ability to understand customer requirements; define/understand processes and their effectiveness, efficiency and adaptability; ability to take a systemic view of activities from a broader perspective; analyze processes; establish a vision for optimization.

- **Change Facilitation:** Encourage individuals to seek opportunities for different and innovative approaches to addressing problems and opportunities. Facilitate the implementation and acceptance of change in the workplace.
- **Communication Skills:** Candidates should demonstrate strong interpersonal communication skills and the capacity to convey respect for employee concerns and stresses related to the LSS process. Must possess proficiency in oral and written communications and a willingness to learn new communication techniques and to improve their skills in a high-stress communication environment.
- **Computer Knowledge:** Understands and uses the basic office tools available on a personal computer. Can do basic word processing, spreadsheets, emails, presentations and web browsing.
- **Program and Project Management:** Identify customers, deliverables, project scope, plan and resources; remove obstacles; meet quality, cost and timeliness goals; make decisions.
- **Financial Analysis:** Utilize cost analysis methods and procedures to determine resource allocations and evaluate alternatives in shop and office areas. Using established principles and practices, gather data, interpret information, and explain fluctuating elements and risks in investments.

Cause-and-effect diagram: A tool used to identify and organize possible causes of a problem in a structured format. It is sometimes called a fishbone diagram because it looks like the skeleton of a fish.

Charter: A written document that describes the work of the team.

Checklist: A list of action items, steps, or elements needed for a task. Each item is checked off as it is completed.

Checksheet: A form used to collect data by making tally marks to indicate the number of times something occurs. Checksheets help standardize the data that is collected and the data collection process.

Combination work table: A table that combines human movements with the operation. Documents takt time, cycle time, walk time, wait time, work while walking, and machine time. Used to identify and analyze the waste of motion and waste of waiting in the scope and sequence of work.

Concentration diagram: A type of checksheet in which you write on a picture of the object about which you are collecting data.

Concept review: A design review conducted after one or two key design concepts have been identified and their feasibility has been determined.

Contextual inquiry: A data-gathering method used to collect latent customer needs.

Control chart: A time plot that includes a centerline and upper and lower control limits. These limits allow you to quickly detect specific changes in a process.

Cost-benefit analysis: Evaluation of the financial impact of proposed solutions or actions.

Critical Customer Requirements: Measurable, “must-have” or “must-be” attributes which are important to the customer. Often, a major challenge for process improvement teams is translating the Voice of the Customer into Critical Customer Requirements.

Critical to Quality (CTQ): Critical to Quality Characteristics of a product or service which contains the following elements: the characteristic, a measure for the performance of the characteristic, a target value, and specification limits for the measure. CTQs are also called design requirements.

Critical to Quality (CTQ) achievement matrix: Also called a CTQ risk matrix, this tool summarizes the thinking about risks associated with not meeting target performance requirements.

Culture: A system of values, beliefs, and behaviors inherent in an organization.

Customer: The primary recipient of the output from our processes. In Lean Six Sigma, the term “customer,” “external customer,” or “end user” are those individuals and organizations that pay for and receive our products and services. The term “customer”, “Internal customer”, or “process partner” is often used at the project level to describe those parts of the organization that internally receive the output from process being improved.

Cycle time analysis: The study of how much time it takes for work to flow through a process. You can identify bottlenecks and inefficiencies by looking at the work time and the wait time in each process step.

Cycle Time (also known as “Process Cycle Time” or “Process Lead Time”): The elapse time from the start to the end of a process. Cycle time includes the time consumed by all activities within the process area including product/service creation or transformation, wait time, transportation, and rework. Cycle time is a function of the number of things in the process area and the process exit rate (see “Little’s Law”)

Data: Clearly defined measurements of characteristics. They are most useful when collected to monitor or improve a process.

Defect: A characteristic of a product or service that does not meet customer expectations. It does not necessarily have to be something that is broken. Defects, by definition, are defined by the customer. Defects are counted and there may be multiple defects per product or service (ex, cup of coffee is too cold, too sweet, not strong enough = 3 defects per cup).

Defect opportunity: A measurable chance for a defect to occur.

Defective: A product or service that does not meet customer expectations. One or more defects are required to make a product or service defective.

Define, Measure, Analysis, Design, Verify/Validate (DMADV): The design methodology used when incremental improvement is not enough, or when a new product, service, or process is needed.

Deployment Champion: See “Executive Deployment Champion” and/or “Non-Executive Deployment Champion”.

Design of Experiments (DOE): A branch of applied statistics dealing with planning, conducting, analyzing, and interpreting controlled tests to evaluate the factors that control the value of a parameter or group of parameters.

DMAIC (pronounced “Dee-MAY-ic”): A sequential, five-step improvement process for improving existing products and services. “DMAIC” is the abbreviation for “Define”, “Measure”, “Analyze”, “Improve”, and “Control”. “Define” describes the performance gap to be closed. “Measure” describes the method of measurement and collects data to describe the baseline performance; “Analyze” identifies the root cause of the performance gap. “Improve” develops, selects, and implements improvements to the process. “Control” validates that the performance gap has been closed and established management controls and ongoing metrics to ensure that project gains can be sustained over time.

DMAICV (pronounced “Dee-MAY-ic-VEE”): The A sequential, five-step DMAIC improvement process with the addition of a sixth step “Validation” in which projects benefits are subjected to an after-the-fact validation process.

Delighter needs: Product or service characteristics which customers do not mention because they are not dissatisfied with their absence. Often, customers have not thought these characteristics were possible.

Design methodology: Used when a new process, product, or service is needed, or when an existing process, product, or service needs such significant change that the improvement process is inadequate.

Designed experiments: The systematic and simultaneous testing of multiple process inputs or variables to study their effect on the output.

Detailed design review: A design review (also called a pre-pilot design review) conducted when the detailed design is complete and the product or service is ready to be piloted.

Design For Lean Six Sigma (DFLSS): Design for Lean Six Sigma is a methodology and set of tools for new product and service development. DFLSS is about “designing in” quality and speed in order to eliminate unwanted complexity and to deliver streamlined, customer-focused, defect-free products and services. DFLSS is about “getting it right the first time” instead of improving later.

Efficiency calculation (Overall Equipment Efficiency–OEE): A measure to assess efficiency of equipment or a resource pool; focuses on availability of equipment or resource, performance speed, and rate of quality products or services produced. One of the approaches in the See the Waste step of the Lean Pathway; the calculation is represented as: $\text{Efficiency} = \text{Availability} \times \text{Performance Speed} \times \text{Rate of Quality Products/Services}$.

EMEA: Error modes and effects analysis is used to identify potential errors related to human performance.

Executive Deployment Champion: The person accountable to the Commanding Officer for the overall success of the Lean Six Sigma deployment within their organization. The Deployment Champion is the organization’s central coordinator for Lean Six Sigma policy, planning and execution.

Flowchart: A picture of the sequence of steps in a process in which different steps are represented by boxes or other symbols. Can be adapted to show hand-offs or to highlight value added steps.

FMEA: Failure modes and effects analysis is used to identify potential equipment and machinery failures.

Frequency plot: A graphic tool that shows the shape or distribution of the data by showing how often different values occur. This makes it easier to see what is happening with the data and to identify some types of process problems.

Green Belt (GB): A person who may lead small-scale Lean Six Sigma projects or participate as a key member on projects lead by a BB or another GB. The GB normally applies the LSS methodology to drive local improvements within their functional area. GBs receive a basic level of training in Lean Six Sigma tools and concepts. Green Belts hold full-time jobs within their functional areas and work part time on Lean Six Sigma projects.

Gantt chart: A chart of a project schedule that shows the order and duration of tasks.

Gage R&R: An investigation of the repeatability and reproducibility of the measurement system in order to determine the sources and amount of measurement variation.

High-level design review: A design review conducted after a concept has been designed to some level of detail and tested, and before detailed design begins.

High Impact Core Value Stream: Designated critical value streams of significant, strategic importance.

Hoshin Kanri: Strategy. Literally it means “to move the whole ship in the right direction.” It refers to the requirement that all improvement projects meet the strategic needs of the organization.

Hypothesis Testing: A type of statistical test that uses data for drawing conclusions about a population. The results of hypothesis testing are either a rejection of the hypothesis or a failure to reject. Hypothesis testing can be conducted with either attribute or continuous data and on normally distributed and non-normally distributed samples. The actual tests will be different based on the nature of the data.

Hypothesis testing: A statistical procedure to determine if subgroups or strata give results that differ significantly.

Improvement methodology: Used for incremental improvements to existing products, services, and processes. There are two basic versions of the improvement methodology: DMAIC and Lean DMAIC.

Just in Time (JIT): A Lean concept that aims to deliver products and services to the customer only as they are requested or needed. It goes beyond the Pull Systems concept in that it addresses the timing of the process and process communications. It answers questions such as “when must I start this process step in order to have a product ready for the customer, when they ask for it?” A primary goal of JIT is to reduce inventories and cycle time while maintaining customer service levels.

Kaizen (also known as “Kaizen Event”): A Japanese term meaning “Continuous Improvement”. In Lean Six-Sigma terms, it refers to a highly focused, short-term rapid improvement event performed by cross-functional teams at the work-group level that identifies and removes waste from a process. Good Kaizen events follow the Define-Measure-Analyze- Improve-Control (DMAIC) recipe, can be performed quickly (usually less than two months), and involve the use of basic Lean Six-Sigma tools to implement process improvement solutions. Kaizen is focused on rapid improvement.

Kaizen to-do list: A simple matrix that lists tasks, responsibility, timing, and percent completion of each item in order to track implementation progress by percent complete.

Kano model: A model developed by Noriaki Kano which defines three categories of customer needs: must-be needs, satisfiers, and delighters.

Leadership Seminars: Seminars developed or organized on an as-needed basis to address new strategic approaches provided for the benefit of leadership.

Latent needs: Customer needs that may not be verbalized and have to be extracted in a VOC study.

Lean: A rigorous methodology for identifying and eliminating waste and its drivers in processes and increasing customer value. The goal of Lean is to produce the right amount (based on demand) of high-quality products and services (as defined by your customers) with the least amount of time, effort, and cost. The terms in bold reflect the emphasis that Lean places on

1. understanding customer requirements,
2. pacing the workflow so that you neither over- nor underproduce,

3. critically examining a process so you can identify anything that either harms quality or adds waste.

Lean pathway: A five-step model to guide and help speed up the implementation of Lean in an organization. The five steps include:

1. See the Waste
2. Prepare the Workplace
3. Improve Daily Work
4. Address Setup and Maintenance
5. Make Value Flow Faster

Lean Six Sigma (abbreviated “LSS”): Reducing to its simplest form, LSS is a combined management approach that emphasizes use of ‘lean’ methodologies and tools to identify and remove waste and increase process velocity, followed by use of ‘six sigma’ methodologies and tools to identify and reduce or remove process variation.

Lean Six Sigma Project: A high impact, high priority project which has the following characteristics:

- Can generally be completed within 4-6 months
- Will solve a defect that is within the project’s span of control
- Will deal with a process that is repetitive
- The defect is measurable and the possibility to collect data exists
- Will result in an implemented improvement that is important to the customers of the process
- Will result in process improvement or dollar savings

Little’s Law: The fundamental equation of Lean. Little’s Law states that cycle time is a function of the number of “things” in process divided by the exit rate of the process.

Must-be needs: Characteristics which customers generally take for granted.

Metrics, Process (or Input): A subset of measures, the improvement of which has a direct positive effect on Results Metrics. Often referred to as “x” metrics as in the equation “ $Y = f(x)$ ”.

Metrics, Results (or Output): A subset of measures, the improvement of which are critical to the success of the organization. A change in Results Metrics, will directly and significantly affect customer or stakeholder satisfaction. Often referred to as “Y” metrics as in the equation “ $Y = f(x)$.”

Non-Executive Deployment Champion (DC): The person accountable to the Deputy Commander/Department Head level, for the sub-organizational LSS CPI project portfolio and personnel management. The Deployment Champion is the sub-organization’s central coordinator for LSS policy, planning and execution.

Non-Value Add: Tasks or activities that the organization performs which the customer does not value and (if given the choice) is not willing to pay for.

Operation analysis worksheet: A worksheet that shows the sequential steps of an operation or process, as well as a sketch, picture, or diagram of the operation or process; used to document the work process and work sequence.

Operational definition: A precise description that tells how to get a value for the characteristic you are trying to measure. Often a cutoff for what is to be considered defective is included.

Overburden (Muri): The overextension of the capacities of people, equipment, and machines and one of the major drivers of waste. Examples include a process step that runs at a pace harder than can be maintained and still achieve safe, consistent results, and one piece of equipment that works beyond its design capacity (i.e., higher volumes, faster rates.)

Pareto chart: A graphic tool that helps break a big problem down into its parts and identify which parts are most important.

PDCA: The Plan-Do-Check-Act cycle is an approach to improvement that emphasizes planning a set of actions and how to collect data on their effectiveness, implementing the actions, checking the data, and acting on the data.

Pilot test: A small-scale test of a proposed solution.

Platform management matrix: When all KQCs cannot be met immediately, the design may need to be developed and released in phases. These phases are described in this tool.

Poke-Yoke: A Japanese term that means “error-proof”. Error proofing is one of the Holy Grails of Lean Six Sigma projects. It means it is impossible for an error to occur. Examples are computer fields that automatically fill in, based on other information entered; or an email that is automatically sent when an event occurs.

Prioritization matrix: A tool used to compare multiple solution ideas against key criteria and each other.

Process: A sequential series of tasks, activities, decisions, and events that generates a product or service.

Process map: A graphical tool used to portray a sequential series of tasks, activities, decisions, and events. Process maps may also portray the suppliers, customers, inputs, and outputs of the process.

Process management: Ongoing process management is both a source for new improvement and design projects, and the system that supports and maintains the projects’ solutions. This system is needed to sustain and improve the new design once it is fully implemented.

Process management chart: A summary of a process management plan. Often includes a flowchart of the process, descriptions of what is measured, how those measures are displayed, and what actions to take if the measures are not satisfactory.

Process management plan: A well-defined plan of action for monitoring processes “end-to-end” and taking action if measures become unacceptable.

Process owners: Individuals who are responsible for seeing that processes continue to meet requirements.

Process sigma: A measure of process performance against customer specifications. (See the process sigma table and worksheets in the Appendix to convert process yields or DPMOs to process sigmas.)

Pugh matrix: A tool and procedure used to stimulate discussion among design team members about the qualitative aspects of the concepts being considered. It supports the team's efforts in arriving at a superior design concept.

Project Charter: A short document that summarizes the rationale, objective, and scope of a project. Project Sponsors, Deployment Champions, and Executive Leadership are responsible for writing Project Charters. Project Charters generally address the following:

- **Opportunity or Problem Statement:** Provides the rationale why the project should be undertaken. Should include a clear description of the opportunity or benefit to the customer or organization of undertaking the project and/or negative impact if existing process performance is allowed to continue.
- **Goal Statement:** The measurable, operationally focused performance gap to be closed by the project. Good goal statements focus on closing the performance gap caused by unacceptable numbers of defects, poor reliability, high cycle time, poor on time delivery, high or variable cost per transaction or item, or high or variable usage rates.
- **Business Impact:** The financial impact, in dollars, of closing the performance gap described in the Goal Statement. Dollars should be classified into Level I, II, or III savings categories
- **Project Scope:** The logical organizational and operational boundaries of the project. Common scoping parameters are product & services groups or families, locations, technologies, and number of process steps. Both “in scope” and “out of scope” parameters should be documented under the Project Scope.
- **Project Plan:** The planned start-to-end timeline for the project. The Project Plan timeline should follow the DMAIC process and include key milestone dates and deliverables.
- **Team Selection:** Team member names, positions, and subject matter backgrounds.

Project Identification and Selection Process (PISP): A disciplined, structured process for identifying improvement idea opportunities, translating the most promising ideas into Project Charters, and prioritizing and releasing the Project Charters to Black Belts for execution. PISP uses a clear, consistent set of project evaluation criteria to ensure alignment with the organization's strategic goals and priorities. Deployment Champions and other executive leadership are responsible for owning and managing PISP.

Project Scoping: The general term used for the process of developing project ideas. A wellscoped project generally will have the following characteristics:

- Can be completed within 4-6 months
- Will solve a defect that is within the commands' span of control
- Will deal with a process that repeats itself quite often
- The defect is measurable and the possibility to collect data exists
- Will result in an improvement that is important to the customers of the process
- Will result in process improvement or dollar savings

Project Sponsor: Supervises the LSS. The sponsor will scope (identify, focus and define) and charter the project and assign a BB to it. The Project sponsor is the person responsible for providing resources, "barrier busting", mentoring, and support to the Black Belt assigned to their project. The sponsor will work with the process owner to ensure that the project is completed and successfully executed. Project Sponsors are responsible for writing Project Charters, scheduling and helping the team prepare for Tollgate Reviews, and sustaining the results generated by a LSS project. Project Sponsor is a part time role that lasts for the duration of the project.

Pull Systems: A process that only responds to customer demand; the idea being that work that is not done in response to customer demand is wasted effort.

QC process chart: See process management chart.

QFD: Quality Function Deployment (also called the House of Quality) is a graphical tool used to summarize research information which helps a design team focus on the key design elements.

Regression analysis: A statistical procedure to build a linear model that shows how various predictive variables (x's) can be combined to predict an output value (y).

Root cause: The deep underlying cause of a problem in a process or system. Sampling: Measuring a selected subset of all the available units instead of measuring every unit.

SIPOC diagram: A tool used to document the high-level map of the process; helps depict the relationships in producing products and services that meet customer requirements. Suppliers, Inputs, Process steps, Outputs, and Customers are included in this map (SIPOC).

Satisfiers: Product or service characteristics which customers are usually aware of and the more they are provided, the more satisfied customers are.

Scatter plot: A graphic tool that shows the relationship between two variables. It is sometimes referred to as a scatter diagram.

Simulation: An activity that allows you to draw conclusions about the behavior of a real or proposed product, process, or service by studying the characteristics of a model.

Six-Sigma: A systematic methodology for process improvement that focuses on reducing variation, producing highly repeatable processes, and creating customer satisfaction. Six-Sigma utilizes the Define-Measure-Analyze-Improve-Control (DMAIC) methodology to make process change through disciplined use of facts, data, and statistical analysis and control of existing processes. It also includes an understanding of customer needs and diligent attention to managing, improving, and reinventing business processes. Six-Sigma attacks variation.

Spaghetti chart: A map that shows the current layout of operations and the path taken by the product or service as it moves through the process or processes, often resembling a plate of spaghetti.

Specification Limits: Measurable, customer-defined limits that define the separation between acceptable and unacceptable performance. If a customer demands that deliveries be made within 2-4 days, the lower specification limit (LSL) is at 2 days and the upper (USL) specification limit is at 4 days. Any delivery that falls outside those limits is defective.

Stakeholders: Individuals, customers, and parts of the organization who have an interest or who may be affected by the conduct and results of a project.

Strategic Organizational Process Analysis: An assessment used for benchmarking and measuring improved effectiveness where organizations are measured using generally accepted process improvement values, concepts and criteria. The assessment describes how well an organization measures, analyzes, aligns, reviews, and improves its performance at all levels and in all parts of the organization. This assessment would form the basis upon which an organization transformation plan would be created or modified.

Stratification: Dividing a group of data into subgroups to see whether the data differs among subgroups. This helps identify the factors that have the most impact on the problem.

Systems Thinking/Learning Organization Class: Based upon the *The Fifth Discipline* by Peter Senge, this is a class developed to enhance the organization's ability to continually expand its capacity to create using systems thinking.

Takt time: The amount of time allocated to produce one unit based on customer demand; used to synchronize the process and establish the measure for uniform production flow. It is calculated by taking the process time per work period and dividing it by the total number of units required by the customer during that time period. If, for example, an application processing center performs 480 minutes per day and customer demand is 24 applications per day, process pulse time is 20 minutes ($480/24 = 20$)—every 20 minutes an application should be processed. If all operations or process steps are within process pulse time, overall production and processing will flow smoothly and uniformly. One-piece flow will work when each task is completed within the process pulse. This is one of the approaches in the Make Value Flow Faster step in the Lean pathway.

Theory of Constraints (TOC) A systematic approach to optimize resource utilization by identifying, exploiting, subordinating, elevating and reassessing constraints in the process. Scientific principles are applied as a set of logical thinking processes to develop transformational, breakthrough business solutions. A constraint is any resource whose capacity is less than the demand placed upon it. TOC attacks constraints and barriers (a restriction or other block to increases in output).

Time plot: A graph of data in chronological order that helps identify any changes that occur over time.

Tollgate review: A review at particular milestones in improvement and design projects, often at the end of steps or phases of work. In design projects, tollgate reviews often focus on issues like completeness of work, schedule, and resource issues.

Unevenness (Mura): One of the major drivers of waste that occurs when production, work schedule, or volume of work varies, or when some parts of the process are working harder than others. Examples include batching of the billing cycle (all bills get mailed at the end of the month) and working with a machine down so another machine works at twice its usual pace to pick up the slack.

Unit: The item produced or processed.

Upper and Lower Statistical Limits (USL) (LSL): These are the limits that define quality. They are set by the customer. If a customer demands that deliveries be made within 2-4 days, then those are your USL and LSL. Any delivery that falls outside those limits are defects.

Validation : An independent verification process conducted by a financial representative after the Control Tollgate, to determine whether the nature and magnitude of benefits estimated at project completion are actually being realized. The sixth phase in the DMAICV process.

Value Add (also known as “Customer Value Add”): Tasks or activities that the organization performs that the customer is willing to pay for. Value-add usually consists of a form, fit, or function transformation to materials or the delivery of customer-desired information or services.

Value analysis matrix: A matrix to collect and track specific types of non-value-added time used to help clarify not only the types of waste present in the process, but also the percentage of the overall process each non-value-added step adds.

Value stream: All the actions that are required (both value-added and non-value-added) to bring a product or service to completion.

Value stream map: A picture (map) of the entire value stream; includes both material (product/service) and information flows. It is a tool used to identify waste within the process and identify areas of improvement. This is one of the approaches in the See the Waste step of the Lean Pathway.

Value Stream Manager (VSM): Leader responsible for managing the integration of value stream processes to measure and improve overall value stream operations and performance. The VSM manages a portfolio of value stream improvement projects through collaboration with process owners, value stream customers, stakeholders, resource sponsors, and the CPI core team to continuously improve value stream performance as measured by: quality, cost, cycle time and safety. The Value Stream Manager may be the process owner or the resource owner.

Visual Factory: A Lean concept that rests on the idea that everything should be visible, so that if there is a problem someone will notice and take action. The visual factory has 6 levels: Share information; Share standards at the site; Build standards into the workplace; Warn about abnormalities; Stop abnormalities; Prevent abnormalities.

Voice of the Customer (VOC): Voice of the Customer is a term used to describe customers' needs and perceptions of a product or service.

Waste assessment worksheet: A simple checklist used to identify different types of waste and potential solutions.

Workflow diagram: A tool for collecting data on how work flows through an operation. The path of work is recorded on a schematic of the workplace.

Workplace map: A diagram of the workplace used when focusing on preparing for systematic waste reduction by making the workplace orderly, having the right tools on hand, and laying out the workspace for optimum efficiency.

$Y=f(X)$: Refers to cause and effect and is a tool for root cause analysis. An output variable Y is dependent on the inputs of one or more independent variables, X. Lean Six Sigma projects focus on improving Y, through the improvement of a 'key' X variable. That means we should be treating causes, not symptoms. $Y=f(X)$ analysis is used as a brainstorming tool for identifying project opportunities and as a tool to ensure that the project is properly focused.

Yellow Belt. A Yellow Belt is a member of a Lean Six Sigma project team, specifically trained by the BB in tools and methods needed to perform the DMAIC process on a specific process