Glossary of Lean Terminology

Lean Term	Definition	Use
6S:	Used for improving organization of the workplace, the name comes from the six steps required to implement and the words (each starting with S) used to describe each step: sort, set in order, scrub, safety, standardize, and sustain.	Create a safe and organized work area
A3 thinking:	Forces consensus building; unifies culture around a simple, systematic methodology; also becomes a communication tool that follows a logical narrative and builds over years as organization learning; A3 = metric nomenclature for a paper size equal to 11"x17"	TPOC, VSA, RIE, problem solving
Affinity Diagram:	A process to organize disparate language info by placing it on cards and grouping the cards that go together in a creative way. "header" cards are then used to summarize each group of cards	Problem solving, brainstorming
Andon:	A device that calls attention to defects, equipment abnormalities, other problems, or reports the status and needs of a system typically by means of *lights* – red light for failure mode, amber light to show marginal performance, and a green light for normal operation mode.	Visual management tool
Annual Objectives:	In Policy Deployment, those current year objectives that will allow you to reach your 3-5 year breakthrough objectives	Strategic focus
Autonomation:	Described as "intelligent automation" or "automation with a human touch." If an abnormal situation arises the machine stops and the worker will stop the production line. Prevents the production of defective products, eliminates overproduction and focuses attention on understanding the problem and ensuring that it never recurs.	On-demand, defect free
Bottleneck:	The place in the value stream that negatively affects throughput; as a resource capacity limitation, a bottleneck will not allow a system to meet the demand of the customer.	Constraint or flow stopper

Lean Term	Definition	Use
Bowling Chart:	A form used to track performance (plan vs actual) on Policy Deployment objectives. Usually reviewed with top management on a monthly basis	Visual management
Breakthrough Objectives:	In Policy Deployment, those objectives characterized by multi-functional teamwork, significant change in the organization, significant competitive advantage and major stretch for the organization.	Strategic Focus
Catch Ball:	The process of selecting strategies to meet an objective at any level then getting managers and their teams to engage in dialogue to reach agreement on strategies to achieve their goals.	Strategy deployment Collaborative goal setting
Cause and Effect Diagram:	A problem-solving tool used to establish relationships between effects and multiple causes.	Problem solving
CEDAC:	Acronym for Cause and Effect Diagram with the Addition of Cards. CEDAC is a method for involving team members in the problem solving process.	Problem solving
Cellular Manufacturing:	An approach in which manufacturing work centers (cells) have the total capabilities needed to produce an item or group of similar items; contrasts to setting up work centers on the basis of similar equipment or capabilities, in which case items must move among multiple work centers before they are completed	Creating flow and eliminating waste
Cellularization	Grouping machines or processes that are connected by work sequence in a pattern that supports flow production	Creating flow and eliminating waste
Chaku-Chaku:	Japanese term for “Load-Load”. It refers to a production line raised to a level of efficiency that allows the operator to simply load the part and move on to the next operation. No effort is expended on unloading. (see Hanadashi).	Creating flow and eliminating waste
Changeover:	As used in manufacturing, the time from when the last “good” piece comes off of a machine until the first “good” piece of the next product is made on that machine. Includes warm up, first piece inspection and adjustments.	Creating flow and eliminating waste

Lean Term	Definition	Use
Counter Measures:	Immediate actions to bring performance that is tracking below expectations back into the proper trend. Requires root cause analysis	Problem Solving
Fishbone Diagram:	A chart that resembles a fish skeleton, with a main spine and branches (bones) drawn at a slant off the spine; used for quality control in two main ways: 1. As a cause-and-effect diagram, where the spine denotes an effect and the branches are cause factors. 2. As a subdivision of quality requirements, where the spine represents a quality objective and the branches describe subsidiary traits or measurements that are important but are not the end in them selves. (Sometimes referred to as a Reverse Fishbone)	Problem solving, quality improvement
Five whys:	The practice of asking "why" five times whenever a problem is encountered; repeated questioning helps identify the root cause of a problem so that effective countermeasures can be developed and implemented.	Problem solving Determining root causes
Flow:	The progressive achievement of tasks and/or information as it proceeds along the value stream, flow challenges us to reorganize the Value Stream to be continuous… “one by one, non-stop”.	Principle of lean
Flow Cell:	A logical, efficient, and usually physically self contained arrangement of supplies, equipment, and personnel to complete a service sequence; a flow cell enables visual management, simple flow, standard work, transparency, and tight connections.	Creating flow and eliminating waste
Gemba:	Japanese word of which the literal translation is "the real place." where the actual services are provided or where the work is done.	Go and see the work

Lean Term	Definition	Use
Hanedashi:	Device or means of automatic unload of the work piece from one operation or process, providing the proper state for the next work piece to be loaded. Automatic unloading and orientation for the next process is essential for a “Chaku-Chaku” line	Creating flow and eliminating waste
Hansei:	Japanese term meaning to acknowledge your own mistake and to pledge improvement. Deep personal reflection	Continuous Improvement
Heijunka:	Production leveling process that attempts to minimize the impact of peaks and valleys in customer demand. It includes level production-volume and level production-variety	Creating flow
Hoshin Kanri:	Strategic Planning/Strategic Management methodology, developed by Dr. Yoji Akao. Also known as Policy Deployment	Strategic Planning and Execution
Jidoka:	A form of automation in which machinery automatically inspects each item after producing it, ceasing production and notifying humans if a defect is detected	Creating flow and eliminating waste
Just-in-Time (JIT):	A system of managing production processes that result in line-balancing, one-piece flow, and little or no excess material inventory on hand. A strategy that concentrates on making quality products, in the quantity needed, when needed	Creating flow and eliminating waste
Kaizen:	A Japanese term meaning “change for the better”. Applied to business organizations, it implies continuing improvement involving everyone	Continuous improvement
Kanban:	A card or sheet used to authorize production or movement of an item; when fully implemented, kanban (the plural is the same as the singular) operate according to the following rules: 1. All production and movement of parts and material takes place only as required by a downstream operation 2. The specific tool which authorizes production or movement is called a kanban. The word literally means card or sign, but it can legitimately refer to a container or other authorizing device. 3. The quantity authorized per kanban is minimal, ideally one. The number of available kanban for an item is determined by the demand rate for the item and the time required to replenish.	Creating flow and eliminating waste

Lean Term	Definition	Use
Key Performance Indicators (K.P.I.):	A method of tracking or monitoring the progress of existing daily management systems	Daily management
Lead Time:	The total time it takes for a process to convert a raw material to a finished quality part	Data Collection
Line Balancing:	Equalizing cycle times (productive capacity, assuming 100% capacity utilization) for relatively small units of the manufacturing process, through proper assignment of workers and machines; ensures smooth production flow	Creating flow and eliminating waste
Machine Cycle Time:	The time it takes for an individual piece of equipment to complete its functions to produce a quality part independent of the operator's unloading and loading time	Data Collection
Muda:	A traditional general Japanese term for activity that is wasteful and doesn't add value or is unproductive. Removing waste is an effective way to increase profitability	Seeing and eliminating the waste
Mura:	A traditional general Japanese term for unevenness. It is the waste of variation in the production process	Seeing and eliminating the waste
Muri:	A traditional general Japanese term for overburden, unreasonableness or absurdity. Can be eliminated with the employment of standard work	Seeing and eliminating the waste
Nagara:	Smooth production flow, ideally one piece at a time, characterized by synchronization (balancing) of production processes and maximum utilization of available time, including overlapping of operations where practical	Creating flow and eliminating waste
Non Value Added (NVA):	Those process steps in a Value Stream that take time, resources or space, but do not transform or shape the product or service to meet the needs of the customer	Seeing the waste
Operator Cycle Time:	The total time it takes an operator to complete one cycle of all the standard work elements in his job.	Data Collection
P.D.C.A. Cycle:	Plan-Do-Check-Act. An iterative four-step problem-solving process typically used in quality control. It is also known as the Deming Cycle, Shewhart Cycle, Deming Wheel, or Plan-Do-Study-Act.	Problem solving
Paradigm:	A fundamental idea about reality, frequently unquestioned and difficult to change, that conditions all our thinking about and even our physical perceptions of the world or some aspect of experience	Thinking outside the box

Lean Term	Definition	Use
Perfection:	A never ending pursuit of the complete elimination of non-value adding waste so that all activities along a value stream create value; perfection challenges us to also create compelling quality ("defect free") while also reducing cost ("lowest cost").	Principle of lean
Point of use:	The condition in which all supplies are within arms reach and positioned in the sequence in which they are used to prevent extra reaching, lifting, straining, turning, and twisting.	Elimination of waste Storage at the work site
Poka-Yoke:	A Japanese expression meaning "common or simple, mistake proof". A method of preventing errors by putting limits on how an operation can be performed in order to force the correct completion of the operation	Quality at the source
Policy Deployment:	A one year plan, reflecting the long-term vision and the 3-5 year strategic planning objectives. A planning/implementation process that focuses on a few, major, long term, customer focused breakthrough objectives that are critical to a company's long term success. This process links major objectives with specific support plans throughout the organization	Strategic Planning and Execution
Policy Deployment Action Plan:	Form used by the team working on a PD objective, detailing specific activities required for success, milestones, responsibilities and due dates. Team members are also listed with objective definition, meeting dates and management support or owner	Strategic Planning and Execution
Policy Deployment Matrix:	Form used to show relationships between 3-5 year objectives, improvement priorities, targets, resources required and benefits to the organization	Strategic Planning and Execution
Process Map:	A visual representation of the sequential flow of a process. Used as a tool in problem solving, this technique makes opportunities for improvement apparent	Problem Solving
Pull:	Principle the no one upstream function or department should produce a good or service until the customer downstream asks for it	Principle of lean
Pull System:	A manufacturing planning system based on communication of actual real-time needs from downstream operations – ultimately final assembly or the equivalent – as opposed to a push system which schedules upstream operations according to theoretical downstream results based on a plan which may not be current	Principle of lean

Lean Term	Definition	Use
Rapid Improvement Event (RIE):	A 4.5 day process utilizing a team based methodology to apply the lean tools for seeing waste and making immediate improvement	Implementing change
Set-up Time:	Work required to change over a machine or process from one item or operation to the next item or operation; can be divided into two types: 1. Internal: set-up work that can be done only when the machine is not actively engaged in production OR 2. External: set-up work that can be done concurrently with the machine or process performing production duties	Seeing and eliminating Waste
Root Cause:	The ultimate reason for an event or condition	Problem Solving
Shojinka:	Continually optimizing the number of workers in a work center to meet the type and volume of demand imposed on the work center; Requires that: 1. Workers are trained in multiple disciplines. 2. Work center layout, such as U-shaped or circular, that supports a variable number of workers performing the tasks in the layout. 3. The capability to vary the manufacturing process as appropriate to fit the demand profile	Creating flow and eliminating waste
Single Minute Exchange of Die (SMED):	Method of increasing the amount of productive time available for a piece of machinery by minimizing the time needed to change from one model to another. This greatly increases the flexibility of the operation and allows it to respond more quickly to changes in demand. Literally, changing a die on a forming or stamping machine in a minute or less	Creating flow and eliminating waste
Six Sigma:	A statistical term used to refer to a process that generates a maximum defect probability of 3.4 parts per million (PPM) when the amount of process shifts and drifts are controlled over the long term to less than +1.5 standard deviations from the centered mean.	Analysis and elimination of variation
Standard Work:	An agreed upon set of work procedures that effectively combines people, materials, and machines to maintain quality, efficiency, safety, and predictability; establishes a routine for repetitive tasks, provides a basis for improvement by defining the normal and highlighting the abnormal, and it prohibits backsliding	Written description of the “best known way” to do work

Lean Term	Definition	Use
Standard Work in Progress:	The minimum amount of material or a given product, which must be in process at any time to insure proper flow of the operation	Elimination of waste
TPOC:	Transformation Plan of Care = the plan for transforming a business; documented using an A3, this is the executive level road map for a defined period of time.	Creating vision and alignment
Takt Time:	The rate at which product must be turned out to satisfy market demand. It is determined by dividing the available production time by the rate of customer demand. The beat of the process	Set the pace for a flow cell
Total Productive Maintenance (TPM):	Aims at maximizing equipment effectiveness throughout the entire life of the equipment. It involves such basic elements as a routine maintenance system, education in basic house-keeping, problem-solving skills, and activities to achieve zero breakdowns	Maximizing machine up-time
Value:	When a product or service has been perceived or appraised to fulfill a need or desire--*as defined by the customer*--the product or service may be said to have value or worth. Components of value may include quality, utility, functionality, capacity, aesthetics, timeliness or availability, price, etc.	Principle of lean
Value Stream:	All the activities (both value-added and non-value added) required within an organization to deliver a specific service; "everything that goes into" creating and delivering the "value" to the end-customer.	Principle of Lean
Value Stream Analysis:	The identification of all the specific activities occurring along the value stream, represented pictorially in a value stream map; see waste, unevenness, and overburden, size the opportunity, share a vision, communicate visually, permission to change, predict results.	Analysis used to create an action plan for improvement
Visual Management:	The presentation of a wide variety of information in the workplace. Such information may pertain to jobs themselves, to the business as a whole, to how work teams are progressing on a project. Kanban cards are examples of Visual Management, as are storage bins with sample parts displayed, tool shadow boards, story boards, etc…	At a glance rule – abnormalities are obvious
Voice of the Customer:	The desires and expectations of the customer, which are of primary importance in the development of new products, services, and the daily conduct of the business	Listening to and acting on customer feedback

Lean Term	Definition	Use
Waste / Muda:	any operation or activity that takes time and resources but does not add value to the product or service sold to the customer.	Non-value added work
Water Strider or Water Spider / mizusumashi:	someone who moves quickly and efficiently from place to place to collect and deliver material/supplies to the primary members of a flow cell; move as much of the non value added work away from the primary member as possible and 'centralize' it on the water spider.	Improving the delivery of the value through improved efficiency of the primary worker
Yokoten:	Japanese for "across everywhere". Knowledge is shared and plant related activities and countermeasures may be communicated plant wide and with other branches of the company and its affiliates.	Knowledge management

Lean Term	Description	Use
5 Principles of Lean:	1) Value 2) Value Stream 3) Flow 4) Pull 5) Perfection	Philosophy *Lean Thinking*
5 Principles of the Simpler Business System (SBS):	1) Customer defines value 2) Deliver Value to Customers on Demand 3) Standardize and Solve to Improve 4) Transformational Learning Requires Deep Personal experience 5) Mutual Respect and Shared Responsibility enable higher performance	Beliefs of SBS
6S:	1) Sort 2) Set in order 3) Scrub 4) Safety 5) Standardize 6) Sustain	Foundational Tool of Lean
8 Wastes:	1) Unused human talent 2) Waiting 3) Inventory 4) Transportation 5) Defects 6) Motion 7) Over Production 8) Processing	Identification of non-value added activities

Acronym	Description	Use
A3	Metric Size of Paper = 11” x 17” – 9 boxes design to tell the event story	Tool
RIE	Rapid Improvement Event	Tool
POU	Point of Use	Tool
SBS	Simpler Business System	Philosophy
TPM	Total Preventive Maintenance	Tool
TPOC	Transformation Plan Of Care	A3 Type
TPS	Toyota Production System	Philosophy
VOC	Voice Of Customer	Tool
VSA	Value Stream Analysis	Tool

Japanese	English
Chaku-Chaku	load - load
Gemba	go and see the work
Hanedashi	automatic ejection of a part
Hansei:	deep personal reflection
Heijunka:	leveling production by volume and type
Hoshin Kanri:	Policy Deployment
Jidoka:	intelligent automation
Kaizen	Rapid Improvement Event (RIE)
Kanban	visual pull system
Mura	unevenness
Muri	overburden, unreasonableness or absurdity
Nagara:	smooth production flow
Mizusumashi	water strider or water spider
Muda	waste
Poka-yoke	mistake or error proof
Shojinka	load balancing
Yokoten	best practice sharing