

75 Most Important CI & Lean Glossary.

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Term	Definition	Area of Use
<p>A A3 thinking</p>	<p>A3 provides teams with a strategy to effectively & efficiently deal with problems that they encounter & decisions that need to be reached. In true Lean fashion, It bring team into collaborative problem-solving process & allows out-of-the-box solutions. A3 = metric nomenclature for a paper size equal to 11"x17"</p>	<p>Problem solving</p>
<p>Affinity Diagram</p>	<p>It organizes a large number of ideas into their natural relationships. It is the organized output from a <u>brainstorming session</u>. Use it to generate, organize, & consolidate information related to a product, process, complex issue, or problem and group them according to their affinity, or similarity.</p>	<p>Problem solving, Brainstorming</p>
<p>Andon</p>	<p>Andon is a system that quickly alerts operators about a problem on the line & allows the problem to be addressed on the spot. Based on the Lean pillar <u>Jidoka</u></p>	<p>Visual management</p>
<p>B Brainstorming</p>	<p>Brainstorming is a method of generating ideas and sharing knowledge to solve a particular commercial or technical problem, in which participants are encouraged to think without interruption. Its a group activity where each participant shares their ideas.</p>	<p>Problem solving, Ideate any new ideas</p>
<p>Bottleneck</p>	<p>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.</p>	<p>Constraint or flow stopper</p>
<p>Benchmarking</p>	<p>Benchmarking aims to identify areas where your company can improve its efficiency & effectiveness.</p>	<p>Visual mgt, Performance Monitoring</p>

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Bowling Chart	Its a visual method to monitor KPI's. It is an easy and simple method to compare the organizations actual metrics to the goals and targets the organizations have set. It is called a Bowling chart as it resembles the scorecard of a bowling game. It consists of two rows for each KPI, the target value and the actual value.	Visual management
C Catch-Ball	Catch-ball is an effective method of gathering information and promoting discussion around any improvements under consideration. It is most often used for complex initiatives that involve multiple departments, roles, or processes.	Strategy deployment, Collaborative goal setting
Cause & Effect Diagram	A problem-solving tool used to establish relationships between effects and multiple causes. Generally used to capture all the Possible causes of the Problem.	Problem solving, Brainstorming
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.	Creating flow & Eliminating waste
Changeover	The process of switching from the production of one product to another in a machine or a series of linked machines in a production cell.	Creating flow & Eliminating waste
Counter-measure	A immediate response to a cause to close the gap between actual performance and a target or goal. It Requires root cause analysis.	Problem solving
D Disposition	The act of disposing of an item; The disposition is the decision made - the outcome of the review process of a nonconformity	Decision Making
DMAIC	DMAIC (Define–Measure–Analyze–Improve–Control) is a six sigma approach focuses on improving an existing process.	Problem Solving / Process Improvement
DMADV	DMADV (Define–Measure–Analyze–Design–Verify) is a six sigma approach focused on the process of	
DFSS	designing a new product, service or process	

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<p>F</p> <p>Five Whys</p>	<p>The technique of asking "Why?" repeatedly (often as many as 5 times or more) moving from obvious symptoms to discovering the actual root cause(s)</p>	<p>Problem solving</p>
<p>First Time Through</p>	<p>(FTT, also first time yield FTY, First Time Right FTR, or First Time Through Yield): Percentage of products that are produced correctly without defects or rework</p>	<p>Performance Monitoring</p>
<p>Fishbone Diagram:</p>	<p>A problem-solving tool used to establish relationships between effects and multiple causes. Generally used to capture all the Possible causes of the Problem.</p>	<p>Problem solving, Brainstorming</p>
<p>Flow</p>	<p>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".</p>	<p>Principle of lean</p>
<p>G</p> <p>Gap</p>	<p>The measurable difference between actual performance and an established standard, target, or goal.</p>	<p>Performance Monitoring</p>
<p>Gemba</p>	<p>This is the starting place for all problem solving and a foundation of continuous improvement.. A Japanese term meaning "the real place" or "where the action is." In manufacturing it typically refers to the factory floor.</p>	<p>Go and see the work</p>
<p>H</p> <p>Hanedashi</p>	<p>Hanedashi is a Japanese word meaning automatic ejection. It is a manufacturing principle that relies on the automatic discharge or ejection of a finished part</p>	<p>Creating flow & Eliminating waste</p>
<p>Hansei</p>	<p>Japanese term meaning to acknowledge your own mistake & to pledge improvement (personal reflection)</p>	<p>Continuous Improvement</p>
<p>Heijunka</p>	<p>Its a Production leveling process to minimize the impact of peaks & valleys in customer demand. It includes level production volume & level production-variety</p>	<p>Creating flow</p>
<p>Hoshin Kanri</p>	<p>Also called Policy Deployment is a method for ensuring company's strategic goals drive progress & action at every level within that company. This method eliminates waste comes from inconsistent direction & poor communication</p>	<p>Strategic Planning and Execution</p>

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<p>I</p> <p>Iceberg Model</p>	<p>Idea is that the visible problems or statements only make up a small part of entire set of problems & that there are many more problems, issues etc. hidden beneath. Analogy is an iceberg, where only 10% is visible above water, but 90% are invisible below the water.</p>	<p>Strategic Planning and Execution Problem solving</p>
<p>Ishikawa Diagram</p>	<p>A problem-solving tool used to establish relationships between effects and multiple causes.</p>	<p>Problem solving, Brainstorming</p>
<p>J</p> <p>Jidoka</p>	<p>A form of automation in which machinery automatically inspects each item after producing it, ceasing production and notifying humans if a defect is detected</p>	<p>Creating flow & Eliminating waste</p>
<p>Just-in-Time (JIT)</p>	<p>Just-In-Time manufacturing, a methodology aimed reducing times in the production system as well as response times from suppliers to customers</p>	<p>Creating flow & Eliminating waste</p>
<p>K</p> <p>Kaizen</p>	<p>The Japanese word for "Improvement" or "Change for the Better." It implies cont. improvement involving everyone</p>	<p>Continuous Improvement</p>
<p>Kaizen Event</p>	<p>A team activity aimed at rapid use of continuous improvement methods to eliminate waste & improve processes in a specific scope. It is a planned & structured process for quick RCA & Kaizen Implementation.</p>	<p>Continuous Improvement</p>
<p>Kanban</p>	<p>Kanban is a method of regulating the flow of goods both within the factory and with outside suppliers and customers. Based on automatic replenishment through signal cards that indicate when more goods are needed</p>	<p>Creating flow & Eliminating waste</p>
<p>KPI - Key Performance Indicators</p>	<p>KPIs are metrics designed to track and encourage progress towards critical goals of the organization</p>	<p>Performance Monitoring</p>
<p>L</p> <p>Lead Time</p>	<p>The total time it takes for a process to convert a raw material to a finished quality part</p>	<p>Data Collection</p>
<p>Line Balancing</p>	<p>Process of evenly distributing the work across the stations on the line with the goal that every process/worker has approximately the same cycle time</p>	<p>Creating flow & Eliminating waste</p>

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<p>M</p> <p>Machine Cycle Time</p>	<p>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 & loading time</p>	<p>Data Collection</p>
<p>Muda</p>	<p>Muda is anything in the manufacturing process that does not add value from the customer's perspective. Japanese term for Waste</p>	<p>Seeing and eliminating the waste</p>
<p>Mura</p>	<p>A traditional general Japanese term for unevenness. It is the waste of variation in the production process</p>	
<p>Muri</p>	<p>A traditional general Japanese term for overburden, unreasonableness or absurdity. Can be eliminated with the employment of standard work</p>	
<p>N</p> <p>Non-Value Adding Activity</p>	<p>Those activities that take time, resources or space, but do not add to the value of the product itself (Waste). "What the Customer Hates Paying for"</p>	<p>Seeing the waste</p>
<p>O</p> <p>Obeya</p>	<p>Best interpreted as "big room" or "war room." A dedicated space for collaboration and problem solving where a group of team members meet regularly to work on a specific continuous improvement topic</p>	<p>Meeting & Brain Storming</p>
<p>OKR - Objectives & Key Results</p>	<p>OKRs are an effective goal-setting and leadership tool for communicating what you want to accomplish & what milestones you'll need to meet in order to accomplish it</p>	<p>Performance Monitoring</p>
<p>OEE-Overall Equipment Effectiveness</p>	<p>OEE is a framework for measuring productivity loss for a given manufacturing process</p>	<p>Daily Management</p>
<p>One Piece Flow</p>	<p>One-piece flow means parts are moved through the facility with little or no waiting time and parts are moved through operations efficiently. I.e continuous flow</p>	<p>Creating flow & Eliminating waste</p>
<p>OJT - On Job Training</p>	<p>Training of new / existing workers directly on the job, i.e. learning while doing</p>	<p>Training & Evaluation</p>

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<p>P Pareto Chart</p>	<p>A visual charting device that separates the “vital few” from the “trivial many.” A Pareto chart arranges the frequency of occurrence of observed events/causes from the largest to smallest, visually identifying the most significant factors.</p>	<p>Problem solving, Continuous Improvement</p>
<p>Paradigm</p>	<p>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</p>	<p>Thinking outside the box</p>
<p>PDCA Cycle</p>	<p>Plan-Do-Check-Act. An iterative four-step problem solving process typically used in quality control. It is also known as the Deming Cycle,</p>	<p>Problem solving, Continuous Improvement</p>
<p>Poka-Yoke</p>	<p>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</p>	<p>Quality at the source</p>
<p>Policy Deployment</p>	<p>A strategic business process (often referred to as “Hoshin Kanri”) that identifies objectives for “breakthrough” improvement designed to create sustainable competitive advantage and aligns an organization’s functions and activities with these objectives.</p>	<p>Strategic Planning and Execution</p>
<p>Process Map</p>	<p>A visual representation of the sequential flow of a process. Used as a tool in problem solving, this technique makes opportunities for improvement apparent</p>	<p>Problem Solving</p>
<p>Push System</p>	<p>A push system in manufacturing indicates that a corporation creates things based on a demand projection. This is also known as <u>make-to-stock manufacturing</u>.</p>	<p>Inventory Management</p>
<p>Pull System</p>	<p>The pull system is a lean manufacturing technique. This method produces goods based on actual demand rather than expectations.</p>	
<p>PPM</p>	<p>Part per million - A measurement of defect rates as the number of defects per million parts</p>	<p>Performance Monitoring</p>

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<p>Q QCC</p>	<p>Also known as QCC (Quality Control Circle). A regular meeting of workers to identify, understand and improve quality related issues</p>	<p>Problem solving, Continuous Improvement</p>
<p>Quality Function Deployment</p>	<p>QFD is a Quality management approach aiming to determine the true customer requirements to maximize the <u>Value Add</u> & minimize over-processing</p>	<p>Quality Management & Improvement</p>
<p>R (RIE)</p>	<p>Rapid Improvement Event - A 3-5 day involve a small team devoting 100% of their time over three to five days to analyzing and improving a narrowly defined targeted issue or process by using Lean Tools.</p>	<p>Implementing change</p>
<p>Root Cause</p>	<p>One or more observable and verifiable causes that have the greatest effect on the problem definition/gap. Root causes are often found much earlier in time and much farther from the place where problems are recognized</p>	<p>Problem solving, Continuous Improvement</p>
<p>Root Cause Analysis</p>	<p>Its a problem solving methodology that focuses on resolving the underlying problem instead of applying quick fixes that only treat immediate symptoms of the problem</p>	<p>Problem solving, Continuous Improvement</p>
<p>Run Chart</p>	<p>A graph of data, typically represented as a line or column graph, plotted over time. This allows a problem solver to see trends or patters in process performance.</p>	<p>Daily Management</p>
<p>S Sankey Diagram</p>	<p>A Sankey diagram is a visualization used to depict a flow from one set of values to another. The things being connected are called nodes & the connections are called links. The width of the connecting arrows represent the quantity flowing through (material, cost, energy).</p>	<p>Process Flow, Visual Representation</p>
<p>Set-up Time</p>	<p>The time elapsed between the last piece in the run just completed & the first good piece from the process after the changeover</p>	<p>Seeing & eliminating Waste</p>
<p>Single Minute Exchange of Die</p>	<p>SMED is a Method to reduce the <u>Change Over Time</u>, A process for changing over production equipment from one part number to another in as little time as possible. SMED refers to the target of reducing setup/changeover times to a single digit, or less than 10 minutes</p>	<p>Creating flow & Eliminating waste</p>

Term	Definition	Area of Use
Six Sigma	A statistical term used to refer to a process that generates a maximum defect probability of 3.4 PPM	Analysis and elimination of variation
Standardized Work	Standardized Work is documented procedures for manufacturing that capture best practices (including the time to complete each task). It must be "living" documentation that is easy to change.	Written description of the "best known way" to do work
T Takt Time	Takt Time is the pace of production that aligns production with customer demand. Calculated as $\text{Planned Production Time} / \text{Customer Demand}$.	Set the pace for a flow cell
Total Productive Maintenance (TPM)	TPM is a holistic approach to maintenance that focuses on proactive and preventative maintenance to maximize the operational time of equipment. It blurs the distinction between maintenance & production by placing a strong emphasis on operators to maintain their equipments	Maximizing machine uptime
U Utilization	Percentage of the total time a machine or process is planned to work. Sometimes also called the "operating rate". The similar "Operational availability" measures the percentage of the time a machine is running properly.	Performance Monitoring
V Value Add	An activity that transforms or shapes raw material or information to meet customer requirements. "What the Customer is Willing to Pay for"	Seeing & eliminating Waste
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 Mapping	Value Stream Mapping is a tool used to visually map the flow of production. Shows the current and future state of processes in a way that highlights opportunities for improvement.	Process Improvement Seeing Waste
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	Customer feedback

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<p>W Waste</p>	<p>Anything in the manufacturing process that does not add value from the customer's perspective. Japanese term for Waste is "Muda"</p>	<p>Seeing and eliminating the waste</p>
<p>WIP (Work in Progress)</p>	<p>Inventory in the system whose processing has started but is not yet completed. Depending on the usage this can also include finished goods or raw materials.</p>	<p>Inventory Management</p>
<p>X XYZ Analysis</p>	<p>An activity that transforms or shapes raw material or information to meet customer requirements. "What the Customer is Willing to Pay for"</p>	<p>Seeing & eliminating Waste</p>
<p>Y Yokoten</p>	<p>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.</p>	<p>Knowledge management</p>
<p>Z Zero Defects</p>	<p>ZD - Zero Defects. Management program with the goal to reduce defects to zero. Zero defects is a way of thinking and doing that reinforces the notion that defects are not acceptable, and that everyone should "do things right the first time. The idea here is that with a philosophy of zero defects, you can increase profits by eliminating the cost of failure and increasing revenues through increased customer satisfaction</p>	<p>Process Improvement, Problem Solving, Quality Management</p>

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