

**5 Why's**

Lean technique used to determine the root cause of a defect or problem by progressively repeating the question "Why?" five times as a minimum

**5S**

Organization system that uses five sequential steps in order to organize a workplace for efficiency and effectiveness: Sort, Set in Order, Shine, Standardize and Sustain

**A3**

One-page project report format developed by Toyota (printed in paper size 11" x 17") in order to present current conditions and future solutions in a simple and well-structured format

**Andon (Visual Management)**

Visual or auditory signal used to notify and inform people of quality issues or abnormal situations or events related to a process or specific place

**Bottleneck**

Process or operation that limits the overall process flow

**Business Canvas Model**

One-page visual tool that describes, tests, implements and manages business models during their life cycle, simultaneously defining the fundamentals of how an organization creates, develops and captures value.

**Continuous Flow**

Ideal state in which products or services pass throughout a process, one at a time and without interruptions, slowdowns or stoppages. Process concept designed to significantly improve a facility's layout and create uninterrupted workflow between operations.

**Conversion Cost**

All Manufacturing fixed costs except for the cost of raw materials

**CTQ (Critical to Quality)**

A characteristic of a product or service that must meet a critical customer requirement

**Customer**

The internal or external recipient of a product or service. Value-added activities are defined from the customer's perspective.

**Current State Value Stream Map**

A current state VSM is a reference document used to identify the existing most critical forms of waste as well as the improvement opportunity areas.

**DMAIC**

Acronym for Define, Measure, Analyze, Improve and Control.

Refers to a data-driven improvement cycle used for improving, optimizing and stabilizing business processes and designs. The DMAIC improvement cycle is the core tool used to drive Six Sigma projects.

**Effectiveness**

The minimal utilization of resources, with the least amount of waste in order to create value for a customer

**Efficiency**

Process optimization that results in the minimum utilization of resources. Not necessarily linked with value for a client since a process may be efficient but not effective.

**External Set Up Time**

In SMED Methodology, the time spent on the setup when the machine or process is running

**Fishbone Diagram (also called “Cause-Effect” or “Ishikawa” Diagram)**

Root cause brainstorming graphical representation that displays potential variables or causes that affect a specific event

**Flow Diagram**

Graphical representation of all the activities in a process including, tasks, delays, decisions, documentation, motion, etc.

**Gemba**

Place where value is created

**Genchi Genbutsu**

Go and See

**Hoshin Kanri**

Strategic planning methodology used to provide direction and structure through the creation of objectives, strategies and tactics.

**Information Flow**

Uninterrupted progression of supporting data and instructions along the value stream

**Internal Set Up Time**

In SMED Methodology, the time spent on the setup when the machine or process is stopped

**Inventory (excess)**

Any excess number of goods retained for any length of time, inside or outside the factory (raw materials, WIP, assembly parts or Finished goods).

**Jidoka**

Concept that ensures quality is automatically built into a production process. Jidoka is also known as "Intelligent automation" or "automation with a human touch" quality process which allows equipment to detect abnormal or defective situations, stop, fix or correct the immediate condition and investigate root cause to install a countermeasure.

**Just-in-Time**

Lean concept that aims to provide only what is needed, when it is needed, in the quantity that is needed and with the required quality

**Kaizen**

Continuous improvement event with the purpose to increase effectiveness of an activity by adding more value and eliminating waste. Kaizen means gradual continuous improvement and everyone is actively involved. Kaizen is a powerful tool that many leading international organizations use to improve their people and processes.

**Kaizen Blitz**

Improvement event for implementing a lean tool in a short period of time

**Kanban**

A Pull System (Kanban) is a communication system that enables the control of operations, synchronizes manufacturing or service processes based on customer demand while supporting production scheduling. Two types of Kanban: "Withdrawal Kanban" which indicates the type and quantity of products that a process should withdraw from the previous process and the "Production Kanban" which indicates the type and quantity of products that a process should produce.

**Key Performance Indicators**

Essential tangible, databased metrics that quantifies performance levels

**Lead time**

Time lapse from the time an order is placed by the customer until the moment the product is shipped to the customer

**Lean**

Systematic improvement methodology for eliminating waste (Muda) and improving work motivation and team collaboration; based on a customer-centric definition of “value-added” as being any action, process or service that a customer is willing to pay for.

**Motion**

Type of waste that involves motion or movement that is not really needed to perform and operation (also known as Unnecessary Movements)

**Muda (Waste)**

Any activity that utilizes resources but does not add value. Muda is classified in two ways: required for the process and does not add value, and not required for the process and does not add value.

**Mura (Variation)**

Waste due to unevenness or variation

**Muri (Overburden)**

A situation where people or machines are required to work beyond their natural limitations (stressful activities, hard work, extended hours, hazardous jobs, etc.)

**Non-Value added**

Any action, activity, product or process that does not add value from the customer’s perspective.

**Productivity**

Outputs divided by inputs

**Overprocessing**

A form of waste that defines operations and processing that may not be necessary or are consider non-value added.

**Overproduction**

A form of waste that means making what is unnecessary, when it is unnecessary and in unnecessary amounts. Producing more than, faster and before it is needed.

**Poka Yoke**

It is a mechanism that anticipates, prevents and detects the error before it becomes a defect.

**Process Owner**

Person responsible of the execution of a process, and at the same time, provides support, resources and experience to the projects. A process owner is essential for any continuous improvement implementation.

**Six Sigma**

Business management philosophy or practice focused on customer satisfaction, and that uses a methodology to minimize waste through the reduction of process variability

**SMED**

Acronym for “Single Minute Exchange of Die”, SMED is a Lean method to reduce waste in any process or service related to set ups or changeovers. The phrase “single minute”, referring to single digits, suggests that all setups should take less than 10 minutes.

**Soikufu**

Means for capitalizing on the suggestions of the workers. Resources are needed in order to respond to the suggestions.

**Standard Work**

Standard Word is the safest, easiest and most effective method for doing work. One of the most powerful lean tools, Standard Work forms the baseline for kaizen events or continuous improvements. As the standard is improved, the new standard becomes the baseline for further improvements. Improving Standard Work is a never-ending process.

**Takt Time**

Rhythm or beat at which the customer is willing to buy, calculated by dividing available time by customer demand (Available Production Time/Required Units to be Produced)

**Toyota Production System (TPS)**

System philosophy designed by Toyota Motor Corporation, based on the concept that the ideal production conditions are created when people, equipment and resources work together to add value without creating waste. Main TPS pillars are “Just in Time” and “Jidoka”.

**Transportation**

A form of waste that refers to any transference of materials, parts, information, assembly parts or finished goods.

**Value Added**

Defined by the customer, as any action, activity, product or process that complies with the following criteria:

- \*Customer must be willing to pay for it
- \*Product or service must be completed correctly the first time
- \*Product or service must be transformed

**Value Stream**

The internal and/or external processes of creating, producing, and delivering a good or service to the customer.

**Value Stream Map**

Graphical representation of the information and material flow of a system, with the purpose of identifying non-value added activities and bottlenecks for continuous improvement purposes. A Value Stream Map includes all activities required to satisfy customer requests, from the customer order to delivery

**Voice of the Customer (VOC)**

The “voice of the customer” is a process used to capture the requirements and feedback from the customer (internal or external), in order to provide the customers with the best-in-class service or product quality. VOC is represented by specifications, requirements or expectations.

**Waiting**

Type of waste that refers to both human and machine waiting such as conveyance delays, machine failures, operators working too fast or too slow. Also known as the act of doing nothing or working slowly while waiting for a previous step in the process.

**Waste (Muda)**

Waste is any action or step in a process or system that does not add value to the customer. In other words, waste is any process that the customer is not willing to pay for.