

ABNORMALITY MANAGEMENT

The ability to see and respond to an abnormality (any violation of standard operations) in a timely manner.

ANDON

A signal to a line stop. Typically, a cord or light mounted on a machine or line to indicate a potential problem or work stoppage; an example of jidoka. See Jidoka

AUTONOMATION

English translation of Jidoka. Imparting human intelligence to a machine so that it automatically stops when a problem arises. In other words, the automatic control of defects. It includes the practice of stopping machines when some deviation or variance is detected. The detection and stoppage can be effected by either a worker or a machine. Detection schemes include contact, altogether, and action step methods. Mistake-proofing (See poka yoke) as a quality control technique is a subset of autonomation. Autonomation can also be employed for other, non-quality, purposes.

BALANCED PLANT

A plant where all available capacity is balanced exactly to market demand.

BOTTLENECK

Any resource whose capacity is equal to, or less than the demand placed on it.

CHAKU-CHAKU LINE

Meaning load-load in Japanese, this describes a work cell where machines off-load parts automatically so that operators can take a piece directly from one machine to the next without waiting

CHANGE AGENT

A person whose demonstrated mission is to be the catalytic force which moves firms and value streams from the now or current state, e.g. batch and queue, to the future or ideal state: lean manufacturing. One who leads cultural change in an organization.

CELL(ULAR) MANUFACTURING

The arrangement of people, machines, materials and methods such that processing steps are adjacent and in sequential order so that parts can be processed one at a time (or in some cases in a consistent small batch that is maintained through the process sequence). Typically, in a U-shaped configuration where operators remain within the cell and materials are presented to them from outside of the cell. The purpose of a cell is to achieve and maintain efficient continuous flow.

CONSTRAINT

Anything that limits a system from achieving higher performance or throughput.

CONTINUAL IMPROVEMENT

The commitment to creating a better product, work environment and business, every day.

CONTINUOUS FLOW

In its purest form, continuous flow means that items are processed and moved directly to the next process one piece at a time. Each processing step completes its work just before the next process needs the item, and the transfer batch size is one. Also known as one piece flow and "make one, move one".

CYCLE TIME

The time it takes an operator to complete one full repetition of work. Globally, it is the time it takes before the cycle repeats itself. See Operator Cycle Time, Machine Cycle Time.

3Ds

Dirty, dangerous, difficult.

DEFECT

process outputs that do not function properly or do not meet accepted standards or expectations. Often defects are those items that fall outside the tolerance or specification limits.

DEMAND PULL

A methodology which predicates production based solely on customer demand

ELECTRONIC KANBAN

A software system designed to automate many of the manual process associated with releasing or creating a kanban order



ELEMENTAL TIME

Time allotted to a specific operational step, within standard work.

ERROR

The execution of a prohibited action, the failure to correctly perform a required action or the misinterpretation of information essential to the correct execution of an action.

ERROR-PROOFING

Designing a potential failure or cause of failure out of a product or process

EXTERNAL SET-UP

Elements of tooling set-up or machine changeover that can be performed safely while the machine is still running or in motion.

FIVE S (5S)

The primary conditioning discipline for kaizen, the five Ss are defined as: Seiri, to sort, segregate and discard. Seiton, to identify, arrange and set in order. Seiso, to clean, shine, sanitize and inspect daily. Seiketsu, to standardize and revisit frequently, and Shitsuke, to motivate to sustain.

FIVE WHY'S:

Taiichi Ohno's practice of asking "why" five times in order to uncover the root cause of a problem so that effective countermeasures can be developed and implemented

FLOW

the progressive achievement of tasks along the value stream

FLOW MANUFACTURING

A manufacturing methodology that pulls items from suppliers through a synchronized manufacturing process to the end product

GEMBA

The real place or the specific place, usually to mean the shop floor and other areas where work is done or value is created.

GLOBAL PRODUCTION SYSTEM

An expansion of the Toyota Production System, this is a strategy to enable lean manufacturing using kaizen methodology.

HANEDASHI

A device that allows a machine to automatically unload a part without waiting for an operator.

HEIJUNKA

See Production Smoothing; Keeping total manufacturing volume as constant as possible by creating a build sequence that is determined by SKU average demand.

HOSHIN KANRI

a strategic planning approach that focuses resources on the critical initiatives necessary to accomplish the business objectives of the firm

INTERNAL SET-UP

Elements of tooling set-up or machine changeover that is performed while the machine is not in motion.

INVENTORY

Usually the highest cost category, inventory is all raw materials, purchased parts, work-in-progress and finished goods that are not yet sold to a customer.

JIDOKA

See "autonomation." Japanese term for transferring human intelligence to a machine. It means developing processes with both high capability and containment (of defects, if necessary).

JUST IN TIME (JIT)

Manufacturing what is needed, when it is needed, and in the quantity it is needed.

KAIKAKU

Radical improvement, usually in a business process, that affects the future value stream.

KAIZAN

See Kaizen

KAIZEN (NOUN)

A combination of two Japanese words Kai (change) and Zen (good, for the better). Usually defined as "continuous improvement."

**KAIZEN EVENT (VERB)**

A time-sensitive, rapid-deployment methodology that employs a focused, team-based approach to small but non-ending incremental improvements.

KANBAN

Visual signal. Typically a small card, sign or signboard, an instruction to produce or supply something. A re-order card or other method of triggering the pull system, based on actual usage of material. A central element to JIT system. There are two types; production and withdrawal. It should be located for use at the point of manufacturing.

LEAD TIME

The amount of time required to produce a single product, from the time of customer order to shipping.

LEAN MANUFACTURING

Using the minimum amount of total resources — man, materials, money, machines, etc. — to produce a product and deliver it on time.

MACHINE AUTOMATIC TIME

The time it takes for a machine to produce one unit, exclusive of loading and unloading.

MACHINE CYCLE TIME

The time it takes for a machine to produce one unit, including the time it takes to load and unload.

MUDA

Waste or any activity that adds to cost without adding to value of the product.

MURA

Variation or fluctuation in work, process quality, cost and delivery. A lean system seeks to reduce mura through heijunka.

MURI

means, difficult to do, unreasonableness; demand exceeds capacity.

NAGARA SYSTEM

Accomplishing two or more activities with one motion and at the same time.

NON-VALUE ADDED

Any activity that absorbs or consumes resources (e.g. material, time, equipment, people, paper, space) without creating value. Same as muda.

ONE-TOUCH EXCHANGE OF DIES

The reduction of die set-up activities down to a single step.

ONE-PIECE FLOW

A manufacturing philosophy or concept which supports the movement of product from one workstation to the next, one piece at a time, without allowing inventory to build up in between.

OPERATOR CYCLE TIME

The time it takes for a person to complete a predetermined sequence of operations, inclusive of loading and unloading, exclusive of time spent waiting.

PACEMAKER

A technique for pacing a process to takt time.

POLICY DEPLOYMENT

Matching the strategic business goals of an organization to its available resources. Communicating those goals throughout the organization and linking everyone to the same objectives.

POKA YOKE

A Japanese word for mistake proofing, literally translated means, “to avoid inadvertent errors”. An inexpensive poka yoke device prevents or eliminates the possibility of a human error from affecting a machine or process; prevents operator mistakes or errors from becoming defects.

POINT KAIZEN

An improvement activity focused directly on a single workstation, performed quickly by two or three specialists. Typically follows a full-blown kaizen event.



POINT OF PRODUCTION

A methodology which emphasizes the movement of materials to the point of consumption

PROCESS CAPACITY TABLE

A chart primarily used in a machining environment that compares machine load to available capacity.

PRODUCTION SMOOTHING

A method of production scheduling that, over a period of time, takes the fluctuation of customer demand out of manufacturing. "Produce every part, every day".

PULL

To produce an item only when the customer asks for it. Typically, the customer withdraws the item and we "plug the gap" created thereby.

PUSH

To produce an item irrespective of actual demand; creates the muda of overproduction, among others.

QUALITY AT THE SOURCE

A method of quality analysis that emphasizes prevention over detection

QUALITY FUNCTION DEPLOYMENT

A methodology in which a cross-functional team reaches consensus about final product specifications, in accord with the wishes of the customer.

SENSEI

A revered master or teacher, literally, "one who has gone before".

SET-UP REDUCTION

Reducing the amount of downtime during changeover from the last good piece to the first good piece of the next order. Typically, in anything less than 10 minutes. AKA "Single-digit set-up." Also known as SINGLE-MINUTE EXCHANGE OF DIES (SMED)

SIX SIGMA

Structured process improvement program for achieving virtually zero defects (3.4 parts per million) in manufacturing and business processes

SPAGHETTI CHART

Map of the path taken by a product as it travels down the value stream in a mass production organization

STANDARD OPERATIONS

The best combination of people and machines utilizing the minimum amount of labor, space, inventory and equipment.

STANDARD WORK

Pre-determined sequence of tasks for the best way to get the job done in the amount of time available (within takt time) while ensuring the job is done right the first time, every time.

STANDARD WORK COMBINATION SHEET

A document showing the sequence of production steps assigned to a single operator. It is used to illustrate the best combination of worker and machine.

STANDARD WORK LAYOUT

A diagram of a work station or cell showing how standard work is accomplished.

STANDARD WORK IN PROCESS (WIP)

Minimum material required to complete one cycle of operator work without delay.

STOP-THE-LINE AUTHORITY

Whenever abnormalities occur, workers have power to stop the process and prevent the defect or variation from being passed along. See Andon.

SUB-OPTIMIZATION

Optimizing each piece of equipment; keeping all machines running, no matter the cost or consequence. Typically this inflates the number-one cost of production: material.



focus on essentials

SUPERMARKET

A controlled amount of items that are sorted, made ready for presentation and usage, usually located near a line-side upstream process. It is used to make customer requirements visible and to schedule production at an upstream process in order to improve flow and better control levels of WIP.

TAKT TIME

The pace of production synchronized with the rate of sales. It is calculated based upon the total net daily operating time divided by the total daily rate of sales.

THROUGHPUT

The rate at which the entire system generates money.

TIME-BASED STRATEGY

Organizing business objectives around economy-of-time principles.

Total employee involvement (TEI)

Building a culture and practice of involvement and responsibility in every person in the organization

TOTAL PRODUCTIVE MAINTENANCE (TPM)

An integrated set of activities aimed at maximizing equipment effectiveness by involving everyone in all departments at all levels, typically, through small group activities. TPM usually entails implementing the 5S system, measuring the six big losses, prioritizing problems, and applying problem solving with the goal of achieving zero breakdowns.

TOYOTA PRODUCTION SYSTEM

Based on some of the first principles of Henry Ford, this describes the philosophies of one of the world's most successful companies. The foundation of TPS is production smoothing, the concepts which support it are just-in-time and jidoka.

VALUE ADDED

Any activity that transforms a product or service to meet the customer need.

VALUE ANALYSIS

Evaluating the total lead-time and value-added time to identify the percentage spent in value added activities.

VALUE STREAM MAP (or Value Chain Map)

A visual picture of how material and information flows from suppliers, through the enterprise, to the customer. It includes calculations of total cycle time and value-added time. Typically written for the current state of the value chain and the future, to indicate where the business is going.

VISUAL CONTROLS

Creating standards in the workplace that make it obvious if anything is out of order and by displaying the status of an activity so every employee can see it and take appropriate action.

VISUAL MANAGEMENT

System enabling anyone to quickly spot abnormalities in the workplace, regardless of their knowledge of the process, i.e. manage by exception.

WORK-IN-PROCESS (WIP)

Items waiting between operation steps to be processed.

WORK SEQUENCE

The correct steps the operator takes, in the order in which they should be taken. See Standard Work.

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