**Term**
Acceptable quality level (AQL)

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**Term**
Acceptance sampling

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**Term**
Baseline measures

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**Term**
Benchmark measures

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**Term**
Benchmarking

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**Term**
Brainstorming

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**Term**
Co-location

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**Term**
Computer-aided design (CAD)

1) The process of sampling a portion of goods for inspection rather than examining the entire lot. The entire lot may be accepted or rejected based on the sample even though the specific units in the lot are better or worse than the sample. There are two types: attributes sampling and variables sampling. In attributes sampling, the presence or absence of a characteristic is noted in each of the units inspected. In variables sampling, the numerical magnitude of a characteristic is measured and recorded for each inspected unit; this type of sampling involves reference to a continuous scale of some kind. 2) A method of measuring random samples of lots or batches of products against predetermined standards.

When a continuing series of lots is considered, a quality level that, for the purposes of sampling inspection, is the limit of a satisfactory process average.

A set of measurements or metrics that is used to establish goals for improvements in processes, functions, products, and so on. Often derived from other firms that display best-in-class achievement.

A set of measurements (or metrics) that seeks to establish the current or starting level of performance of a process, function, product, firm, or other entity. [These] are usually established before implementing improvement activities and programs.

A technique that teams use to generate ideas about a particular subject. Each person on the team is asked to think creatively and write down as many ideas as possible. The ideas are not discussed or reviewed until after the session.

Comparing products, processes, and services to those of another organization thought to have superior performance. The target may or may not be a competitor or even in the same industry.

The use of computers in interactive engineering drawing and storage of designs. Programs complete the layout, geometric transformations, projections, rotations, magnifications, and interval (cross-section) views of a part and its relationship with other parts.

Placing project team members in physical proximity to facilitate communication and working relationships.

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| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Computer-aided manufacturing (CAM)<br><br><br>APICS CPIM Learning System © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Computer-integrated manufacturing (CIM)<br><br><br>APICS CPIM Learning System © 2025 |
| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Conformance<br><br><br>APICS CPIM Learning System © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Continuous improvement (CI)<br><br><br>APICS CPIM Learning System © 2025 |
| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Continuous process improvement (CPI)<br><br><br>APICS CPIM Learning System © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Control chart<br><br><br>APICS CPIM Learning System © 2025 |
| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Control limit<br><br><br>APICS CPIM Learning System © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Define, Measure, Analyze, Improve, Control (DMAIC) process<br><br><br>APICS CPIM Learning System © 2025 |

The integration of the total manufacturing organization through the use of computer systems and managerial philosophies that improve the organization's effectiveness; the application of a computer to bridge various computerized systems and connect them into a coherent, integrated whole. For example, budgets, CAD/CAM, process controls, group technology systems, MRP II, and financial reporting systems are linked and interfaced.

The use of computers to program, direct, and control production equipment in the fabrication of manufactured items.

The act of making incremental, regular improvements and upgrades to a process or product in the search for excellence.

An affirmative indication or judgment that a product or service has met the requirements of a relevant specification, contract, or regulation.

A graphic comparison of process performance data with predetermined computed control limits. The process performance data usually consists of groups of measurements selected in the regular sequence of production that preserve the order. The primary use of [these] is to detect assignable causes of variation in the process as opposed to random variations. [This] is one of the seven tools of quality. Syn.: process control chart.

A never-ending effort to expose and eliminate root causes of problems; small-step improvement as opposed to big-step improvement. Syn.: continuous improvement. See: kaizen.

A six sigma improvement process composed of five stages: (1) Determine the nature of the problem. (2) Measure existing performance and commence recording data and facts that offer information about the underlying causes of the problem. (3) Study the information to determine the root causes of the problem. (4) Improve the process by effecting solutions to the problem. (5) Monitor the process until the solutions become ingrained.

A statistically determined line on a control chart [...]. If a value occurs outside this [upper or lower] limit, the process is deemed to be out of control.

The practice of giving non-managerial employees the responsibility and the power to make decisions regarding their jobs or tasks. It is associated with the practice of transfer of managerial responsibility to the employee. Allows the employee to take on responsibility for tasks normally associated with staff specialists. Examples include allowing the employee to make scheduling, quality, process design, or purchasing decisions.

1) A process for structuring statistically valid studies in any science. 2) A quality management technique used to evaluate the effect of carefully planned and controlled changes to input process variables on the output variable. The objective is to improve production processes.

A logical approach to identify the probabilities and frequencies of events in a system that are most critical to uninterrupted and safe operation. This analysis may include failure mode effects analysis (determining the result of component failure interactions toward system safety) and techniques for human error prediction.

The concept of using the experience, creative energy, and intelligence of all employees by treating them with respect, keeping them informed, and including them and their ideas in decision-making processes appropriate to their areas of expertise. Focuses on quality and productivity improvements.

Automation that provides short setup times and the ability to switch quickly from one product to another.

Five terms beginning with "S" used to create a workplace suitable for lean production: sort, simplify, scrub, standardize, and sustain. Sort means to separate needed items from unneeded ones and remove the latter. Simplify means to neatly arrange items for use. Scrub means to clean up the work area. Standardize means to sort, simplify, and scrub daily. Sustain means to always follow the first four Ss. Sometimes referred to by the Japanese equivalents: seiri, seiton, seiso, seiketsu, and shitsuke.

A Japanese phrase meaning to visit the shop floor to observe what is occurring.

The place where humans create value or the real workplace. Also a philosophy: "Go to the actual place; see the actual work."

| **Module 8** | **Module 8** |
| *Section C: Continuous Improvement* | *Section C: Continuous Improvement* |

| **Term** | **Term** |
| Go/no-go | House of quality (HOQ) |

| **Module 8** | **Module 8** |
| *Section C: Continuous Improvement* | *Section C: Continuous Improvement* |

| **Term** | **Term** |
| Hypothesis testing | Jidoka |

| **Module 8** | **Module 8** |
| *Section C: Continuous Improvement* | *Section C: Continuous Improvement* |

| **Term** | **Term** |
| Job analysis | Just in time (JIT) |

| **Module 8** | **Module 8** |
| *Section C: Continuous Improvement* | *Section C: Continuous Improvement* |

| **Term** | **Term** |
| Kaizen | Kaizen blitz |

A structured process that relates customer-defined attributes to the product's technical features needed to support and generate these attributes. This technique achieves this mapping by means of a six-step process: (1) identification of customer attributes; (2) identification of supporting technical features; (3) correlation of the customer attributes with the supporting technical features; (4) assignment of priorities to the customer requirements and technical features; (5) evaluation of competitive stances and competitive products; and (6) identification of those technical features to be used (deployed) in the final design of the product. [This] is part of the quality function deployment (QFD) process and forces designers to consider customer needs and the degree to which the proposed designs satisfy these needs. See: customer-defined attributes, quality function deployment.

The state of a unit or product. Two parameters are possible: [one conforms to specification and the other does not conform to specification].

The Japanese term for the practice of stopping the production line when a defect occurs.

Use of statistical models to test conclusions about a population or universe based on sample information.

A philosophy of manufacturing based on planned elimination of all waste and on continuous improvement of productivity. It encompasses the successful execution of all manufacturing activities required to produce a final product, from design engineering to delivery, and includes all stages of conversion from raw material onward. The primary elements of [this] are to have only the required inventory when needed; to improve quality to zero defects; to reduce lead times by reducing setup times, queue lengths, and lot sizes; to incrementally revise the operations themselves; and to accomplish these activities at minimum cost. In the broad sense, it applies to all forms of manufacturing—job shop, process, and repetitive—and to many service industries as well. Syn.: short-cycle manufacturing, stockless production, zero inventories.

A process of gathering (by observation, interview, or recording systems) significant task-oriented activities and requirements about work required of employees.

A rapid improvement of a limited process area; for example, a production cell. Part of the improvement team consists of workers in that area. The objectives are to use innovative thinking to eliminate non-value-added work and to immediately implement the changes within a week or less. Ownership of the improvement by the area work team and the development of the team's problem-solving skills are additional benefits. See: kaizen event.

The Japanese term for improvement; refers to continuing improvement involving everyone—managers and workers. In manufacturing, [this] relates to finding and eliminating waste in machinery, labor, or production methods. See: continuous process improvement.

**Module 8**
*Section C: Continuous Improvement*

**Term**
Kaizen event

**Module 8**
*Section C: Continuous Improvement*

**Term**
Kit

**Module 8**
*Section C: Continuous Improvement*

**Term**
Knowledge management

**Module 8**
*Section C: Continuous Improvement*

**Term**
Lean six sigma

**Module 8**
*Section C: Continuous Improvement*

**Term**
Learning organization

**Module 8**
*Section C: Continuous Improvement*

**Term**
Lower control limit (LCL)

**Module 8**
*Section C: Continuous Improvement*

**Term**
Manufacturing execution systems (MES)

**Module 8**
*Section C: Continuous Improvement*

**Term**
Model

1) The components of a parent item that have been pulled from stock and readied for movement to a production area. 2) A group of repair parts to be shipped with an order. Syn.: kitted material, staged material.

A time-boxed set of activities carried out by the cell team during the week of cell implementation. [It] is an implementation arm of a lean manufacturing program. See: kaizen blitz.

A methodology that combines the improvement concepts of lean and six sigma. It uses the seven wastes of lean and the define, measure, analyze, improve, control (DMAIC) process from six sigma and awards recognition of competence through judo-style belts.

An integrated approach used by organizations to capture, share, develop, and use organizational knowledge. This information is used to more effectively produce product, interface with customers, and navigate through competitive markets.

Control limit for points below the central line in a control chart.

1) A group of people who have woven a continuous, enhanced capacity to learn into the corporate culture. 2) An organization in which learning processes are analyzed, monitored, developed, and aligned with competitive goals.

A representation of a process or system that attempts to relate the most important variables in the system in such a way that analysis of the model leads to insights into the system. Frequently, the model is used to anticipate the result of a particular strategy in the real system.

Programs and systems that participate in shop floor control, including programmed logic controllers and process control computers for direct and supervisory control of manufacturing equipment, process information systems that gather historical performance information and then generate reports, graphical displays, and alarms that inform operations personnel what is going on in the plant currently and what occurred during a very short history into the past. Quality control information is also gathered, and a laboratory information management system may be part of this configuration to tie process conditions to the quality data that is generated. Cause-and-effect relationships can thereby be determined. The quality data at times affects the control parameters that are used to meet product specifications either dynamically or offline.

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| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Nominal group technique<br><br><br>APICS CPIM Learning System      © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Operator flexibility<br><br><br>APICS CPIM Learning System      © 2025 |
| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Overall equipment effectiveness (OEE)<br><br><br>APICS CPIM Learning System      © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Perceived quality<br><br><br>APICS CPIM Learning System      © 2025 |
| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Performance appraisal<br><br><br>APICS CPIM Learning System      © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Performance measure<br><br><br>APICS CPIM Learning System      © 2025 |
| **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Poka-yoke<br><br><br>APICS CPIM Learning System      © 2025 | **Module 8**<br>*Section C: Continuous Improvement*<br><br><br>**Term**<br>Problem-solving storyboard<br><br><br>APICS CPIM Learning System      © 2025 |

Training machine workers to perform tasks outside their immediate jobs and in problem-solving techniques to improve process flexibility. This is a necessary process in developing a fully cross-trained workforce.

A technique, similar to brainstorming, used by teams to generate ideas about a particular subject. Team members are asked to silently come up with as many ideas as possible and write them down. Each member is then asked to share one idea, which is recorded. After all the ideas are recorded, they are discussed and prioritized by the group.

One of the eight dimensions of quality that refers to a subjective assessment of a product's quality based on criteria defined by the observer.

Measuring the effectiveness of all of the equipment of a company based on usage, performance, and production quality.

In a performance measurement system, the actual value measured for the criterion.

Supervisory or peer analysis of work performance. May be made in connection with wage and salary review, promotion, transfer, or employee training.

A technique based on the plan/do/check/action problem-solving process. The steps being taken and the progress toward the resolution of a problem are continuously planned and updated.

Mistake-proofing techniques designed in a way to prevent an error from resulting in a product defect. For example, in an assembly operation, if each correct part is not used, a sensing device detects that a part was unused and shuts down the operation.

| **Module 8**<br>*Section C: Continuous Improvement* | **Module 8**<br>*Section C: Continuous Improvement* |
|---|---|
| **Term**<br>Process capability | **Term**<br>Process capability index |
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| **Module 8**<br>*Section C: Continuous Improvement* | **Module 8**<br>*Section C: Continuous Improvement* |
| **Term**<br>Process control | **Term**<br>Prototyping |
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| **Module 8**<br>*Section C: Continuous Improvement* | **Module 8**<br>*Section C: Continuous Improvement* |
| **Term**<br>QS 9000 | **Term**<br>Quality function deployment (QFD) |
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| **Module 8**<br>*Section C: Continuous Improvement* | **Module 8**<br>*Section C: Continuous Improvement* |
| **Term**<br>Quick changeover | **Term**<br>Random sample |
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The value of the tolerance specified for the characteristic divided by the process capability. There are several types, including the widely used Cpk and Cp.

The ability of the process to produce parts that conform to (engineering) specifications. [It] relates to the inherent variability of a process that is in a state of statistical control. See: Cp, Cpk, process capability analysis.

1) A specialized product design and development process for developing a working model of a product. 2) A specialized system development process for performing a determination where user needs are extracted, presented, and developed by building a working model of the system. Generally, these tools make it possible to create all files and processing programs needed for the evaluation of a business application in a matter of days or hours.

1) The function of maintaining a process within a given range of capability by feedback, correction, and so forth. 2) The monitoring of instrumentation attached to equipment (valves, meters, mixers, liquid, temperature, time, etc.) from a control room to ensure that a high-quality product is being produced to specification.

A methodology designed to ensure that all the major requirements of the customer are identified and subsequently met or exceeded through the resulting product design process and the design and operation of the supporting production management system.

A variation of ISO 9000 certification with additional requirements tailored for the automobile industry, including suppliers. [It] is being superseded by ISO/TS 16949, which incorporates many European standards. See: ISO 9000, ISO/TS 16949.

A selection of observations taken from all the observations of a phenomenon in such a way that each chosen observation has the same possibility of selection.

The ability to shorten machine setups between different machine operation requirements to increase process flexibility. Highest concentration is on first reducing external setup time, then on internal setup issues. This reduces economic order quantity, queue and manufacturing lead times, and work-in-process inventory; it improves quality, process, and material flows.

**Term**
Rework order

**Term**
Root cause analysis

**Term**
Simulation

**Term**
Single-minute exchange of die (SMED)

**Term**
Six sigma

**Term**
Six sigma quality

**Term**
Spread

**Term**
Statistical process control (SPC)

Analytical methods to determine the core problem(s) of an organization, process, product, market, and so forth.

A manufacturing order to rework and salvage defective parts or products. Syn.: repair order, spoiled work order.

The concept of setup times of less than 10 minutes, developed by Shigeo Shingo in 1970 at Toyota. See: single-digit setup.

1) The technique of using representative or artificial data to reproduce in a model various conditions that are likely to occur in the actual performance of a system. Frequently used to test the behavior of a system under different operating policies. 2) Within MRP II, using the operational data to perform what-if evaluations of alternative plans to answer the question, "Can we do it?" If yes, the simulation can then be run in the financial mode to help answer the question, "Do we really want to?" See: what-if analysis.

A set of concepts and practices that focuses on reducing variability in processes and reducing deficiencies in the product. Important elements are (1) producing only 3.4 defects for every 1 million opportunities or operations and (2) process improvement initiatives striving for six sigma-level performance.

A methodology that furnishes tools for the improvement of business processes. The intent is to decrease process variation and improve product quality.

The application of statistical techniques to monitor and adjust an operation. Often used interchangeably with statistical quality control, although statistical quality control [also includes acceptance sampling.]

Variability of an action. Often measured by the range or standard deviation of a particular dimension.

**Module 8**
*Section C: Continuous Improvement*

**Term**
Statistical quality control (SQC)

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Supermarket approach

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Supplier scheduling

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Supplier-input-process-output-customer (SIPOC) diagram

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Taguchi methodology

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Upper control limit (UCL)

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Value stream

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**Module 8**
*Section C: Continuous Improvement*

**Term**
Value stream mapping

A way of managing inventory and improving picking by making all parts easy to take off of a shelf, much like the shelves of a supermarket. Inventory is then restocked in such a way that employees always have easy access.

The application of statistical techniques to control quality. Includes acceptance sampling as well as statistical process control, but is often used interchangeably with statistical process control.

Acronym for "supplier, input, process, output, customer" (pronounced "sye-pahk").

A purchasing approach that provides suppliers with schedules rather than with individual hard-copy purchase orders. Normally, [this type of] system will include a business agreement (contract) for each supplier, a weekly (or more frequent) schedule for each supplier extending for some time into the future, and individuals called supplier schedulers. Also required is a formal priority planning system that works well, because it is essential in this arrangement to provide the supplier with valid due dates. Syn.: vendor scheduling.

Control limit for points above the central line in a control chart.

A concept of off-line quality control methods conducted at the product and process design stages in the product development cycle. This concept, expressed by Genichi Taguchi, encompasses three phases of product design: system design, parameter design, and tolerance design. The goal is to reduce quality loss by reducing the variability of the product's characteristics during the parameter phase of product development. Syn.: Taguchi methods.

A lean production tool to visually understand the flow of materials from supplier to customer that includes the current process and flow as well as the value-added and non-value-added time of all the process steps. It is used to help reduce waste, decrease flow time, and make the process flow more efficient and effective.

The processes of creating, producing, and delivering a good or service to the market. For a good, [this] encompasses the raw material supplier, the manufacture and assembly of the good, and the distribution network. For a service, [this] consists of suppliers, support personnel and technology, the service "producer," and the distribution channel. May be controlled by a single business or a network of several businesses.

**Module 8**
*Section C: Continuous Improvement*

**Term**
Variation

**Module 8**
*Section C: Continuous Improvement*

**Term**
Virtual cell

**Module 8**
*Section C: Continuous Improvement*

**Term**
Voice of the customer (VOC)

**Module 8**
*Section C: Continuous Improvement*

**Term**
Workplace organization

A logical rather than physical grouping of manufacturing resources. Resources [within this] can be dispersed throughout a facility. Product mix changes may change the layout of [this]. This technique is used when it is not practical to move the equipment.

A change in data, a characteristic, or a function that is caused by one of four factors: special causes, common causes, tampering, or structural variation.

The arrangement of tools, equipment, materials, and supplies according to their frequency of use. Those items that are never used are removed from the workplace, and those items that are used frequently are located for fast, easy access and replacement. This concept extends the idea of "a place for everything and everything in its place."

Actual customer descriptions in words for the functions and features customers desire for goods and services.