

FOCAL POINT | PREVALENT LEAN MANUFACTURING PRINCIPLES

1

VALUE DEFINITION

Focus on understanding what the customer values in the product or service and ensuring that every activity contributes to delivering that value.

Example | Reducing the number of extraneous features on a newly-designed air fryer that customers were not valuing based on customer focus group data.

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DMAIC

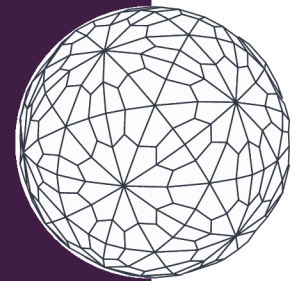
A structured problem-solving method to help improve speed, control costs, and build in quality. The five phases of this Six Sigma approach include **D**efine, **M**easure, **A**nalyze, **I**mprove, and **C**ontrol.

Example | A bedding & linens manufacturing team applies this approach to improve the order-to-ship times of a pillow program for a major retail customer.

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VALUE STREAM MAPPING



Analyzing and mapping all the steps in the production process to identify value-adding and non-value-adding activities; thus, enabling the elimination of waste.

Example | While mapping out and analyzing process steps for a typical customer order - spanning from internal procurement to receiving payment - an energy industry supplier finds redundant steps, overlapping process management, and too many touches in Warehousing & Receiving.

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CONTINUOUS FLOW

Designing processes so that work flows smoothly and continuously through the system, thus, minimizing interruptions and bottlenecks.

Example | Reducing machine set-up and change over times by applying single-minute exchange of die (SMED) practices for critical bagging machines in a french fry producer.

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PULL SYSTEMS (JUST-IN-TIME)

Producing only what is needed, when it is needed, based on actual customer demand rather than forecasting or overproduction.

Example | Using a pull system (by determining the work in process cap and controlling the release of work) to trigger standard components production in a capital equipment manufacturer.

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WASTE ELIMINATION (MUDA)

Identifying and removing the seven sources of waste:

1. Overproduction
2. Waiting
3. Transportation
4. Overprocessing
5. Inventory
6. Motion
7. Defects

Example | Tasking Supervisors and Management to work with their teams to cut out packaging waste, eliminate some employee walking steps, and reduce inventory buildup in a deli foods producer.

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STANDARDIZED WORK

Establishing consistent methods and procedures to ensure repeatability, reduce variability, and improve efficiency.

Example | Creating shop floor procedures to run a canning line - including safety measures, machine set-up configurations, centerlining targets, upper control and lower control limits, and shut-down & start-up steps.

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CONTINUOUS IMPROVEMENT (KAIZEN)

Encouraging small, incremental changes to improve processes, products, or services consistently over time.

Example | Creating a kaizen team to analyze all raw material movements, machine operator processes, production flow, and work-in-process handling for a candle maker.

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6S PROGRAM

- A workplace organization method focusing on:
 - **Safety:** Actively prevent injuries.
 - **Sort:** Remove unnecessary items.
 - **Set in Order:** Organize tools and equipment.
 - **Shine:** Clean work areas.
 - **Standardize:** Maintain consistency.
 - **Sustain:** Ensure long-term adherence.

Example | Creating shadow boards for tools, painting lines for staging and material flow, adding shift start-up and hand-over checklists, and developing a unique safety mascot for visual safety procedures in a machined components producer.



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TOTAL PRODUCTIVE MAINTENANCE (TPM)

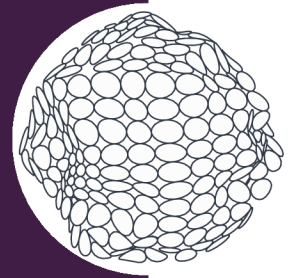
Involving operators in maintaining equipment to prevent breakdowns, improve reliability, and extend machine life.

Example | Maintenance partnering with Operations to look at Overall Equipment Effectiveness (OEE) trends, red tagged equipment, and unreliable lines to create a new process for preventative maintenance work orders and emergency repairs in a food producer.

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ERROR PROOFING (POKA-YOKE)



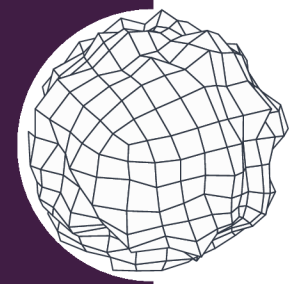
Implementing mechanisms to prevent defects or errors before they occur, ensuring quality control.

Example | An electronics manufacturer uses color-coded components and connectors to ensure equipment sub-assemblies are properly connected and built to specifications.

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VARIATION ANALYSIS



Method to separate the special cause from common cause variation and to detect trends and patterns in manufacturing data - in order to isolate the sources of variation and eliminate them.

Example | An architectural glass manufacturer uses control charts (time series plots with the mean and upper control & lower control limits) on their Lamination line to stay within customer specifications and signal when the process goes out of bounds.

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RESPECT FOR PEOPLE

Empowering employees through training, encouraging collaboration, and fostering a culture of respect, accountability, and problem-solving.

Example | Creating a Continuous Improvement (CI) culture by developing a cross-functional improvement team across Sales & Operations Planning, Finance, Human Resources, Production, Maintenance, Sanitation, and Warehousing in a fresh salads producer. Also, giving credit (recognition, compensation, promotions, etc.) to these CI team members for creating and managing change in addition to their “day job” responsibilities.



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LEAN LEADERSHIP

Ensuring leaders actively support and participate in lean practices, promoting a culture of lean thinking and aligning goals with operational improvements.

Example | An aerospace manufacturer implements a project management office (PMO) to get Leadership actively involved and supporting improvements. This PMO entails improvement team coordination, executive steering committees, projects analyses, development, implementation, reporting, and knowledge management while encouraging Leadership to remove surfacing barriers and support lean initiative teams.

