

LEAN

What is LEAN

Lean is a **systematic methodology** with the goal of **creating value** that is used to **accelerate the velocity** and **reduce the cost** of any process by **removing waste**.

Why LEAN

- ❖ LEAN is about eliminating wasteful activities in process and create smoother process flow.
- ❖ LEAN is about taking time out of wasteful activities from systems thus increasing the speed of processing.
- ❖ LEAN implementation helps in getting more done with less people thus improved productivity.
- ❖ LEAN removes waste hence, there is less space required to manage operations.
- ❖ LEAN removes unwanted steps from the process thus helps in improving the safety & morale of employees.
- ❖ LEAN through removal of all kind of wastes helps in reducing the inventory & operations cost.
- ❖ LEAN helps in increasing the speed of delivery through smoother process & quality resulting into improved customer satisfaction.

House of LEAN

Best Quality - Lowest Cost - Shortest Lead Time
through shortening the Production Flow by Eliminating Waste

Just in Time
“The right part
at the right time
in the right amount”

- Continuous Flow
- Pull System
- Level Production (Heijunka)
- SMED



Flexible, Capable & Motivated People

Jidoka
“Built in Quality”

- Poka Yoke
- Manual / Automatic Line Stop
- Labor-Machine Efficiency
- Visual Control

Standardized Work
Total Productive Maintenance

Operational Stability
5S & Visual Management

Robust Products & Processes
Supplier Involvement

Value Stream Mapping

Deployment of LEAN



Create A Stable Environment



Eliminate Visible Waste



Continuous Flow/JIT

Visual Operations

1. 5S's
2. Visual Metrics
3. Visual Controls
4. Standardized Work
5. Establish The Lean Culture

War on Waste

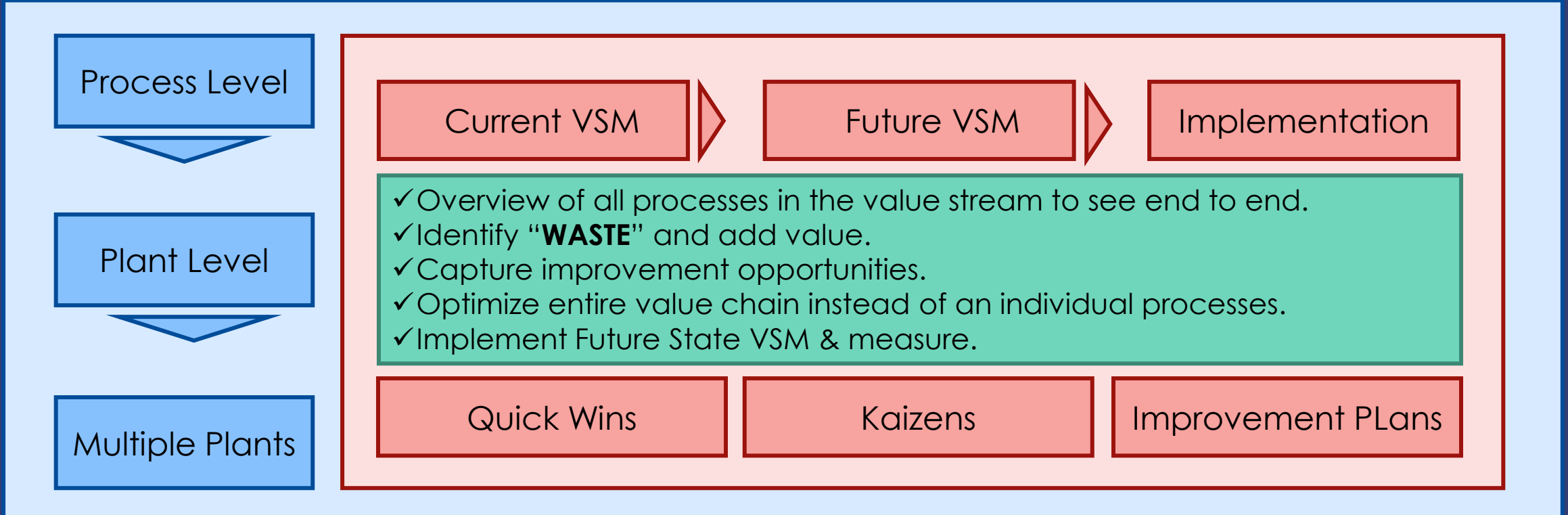
1. Value stream mapping
2. WIP Elimination
3. Mistake Proofing
4. Changeover time
5. Lean Events → Kaizen
6. "Live" the Lean Culture

Lean Optimization

1. Pull Systems - Kanban
2. Takt Time
3. Line Optimization
4. Demand Smoothing

LEAN : Value Stream Mapping

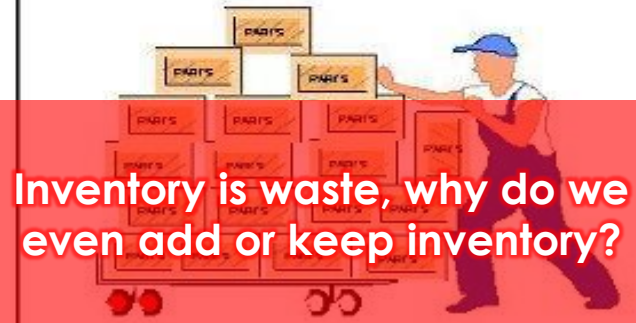
VSM serves as blueprint for LEAN Implementation & helps you **save cost & time** to market by removing wasteful activities thus improves **productivity**.



LEAN : Pull System & Kanban

Push based Process

Make all we can
just in case.



Inventory is waste, why do we even add or keep inventory?

- Production Approximation
- Anticipated Usage's
- Large Lots
- High Inventories
- Waste
- Management by Firefighting
- Poor Communication

5S

Standardized Work

Visual Control/ Andon

FIFO

Kanban

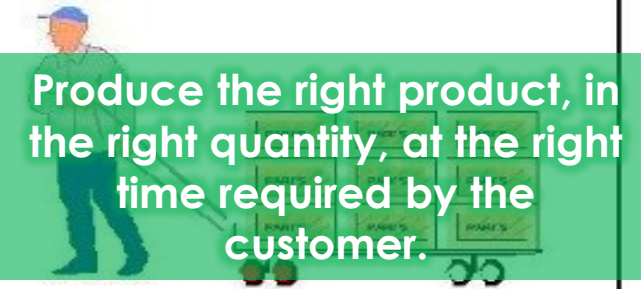
SMED

Heijunka

Quality

Pull based Process

Make what's needed
when we need it



Produce the right product, in the right quantity, at the right time required by the customer.

- Production Precision
- Actual Consumption
- Small Lots
- Low Inventories
- Waste Reduction
- Management by Sight
- Better Communication

LEAN : Standardized Work

Standardized Work is a document centered around human motion that combines the elements of a job into the most effective sequence without waste to achieve the most efficient level of production

GOALS



7 Steps to Standardized Work

1. Determine Takt Time.
2. Collect Process Cycle Time.
3. Prepare “Process Capacity Sheet”.
4. Determine Working Sequence.
5. Prepare “Standardized Work Combination Sheet”.
6. Determine SWIP.
7. Prepare “Standardized Work Chart”.

Merits of a LEAN process

Traditional Processes

1. Infrequent set-ups and long runs
2. Functional focus
3. If it isn't broken don't fix it
4. Specialized workers, engineers and leaders
5. Good enough
6. Run it, Repair it
7. Management directs
8. Penalize mistakes
9. Make the schedule



Lean Processes

1. Quick set-ups and short runs
2. Product focus
3. Fix it so it doesn't break
4. Multi-functionally skilled people
5. Never good enough, continuous improvement
6. Do it right the first time
7. New opportunities
8. Leaders teach & Retrain
9. Make quality



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