

Lean Management



DIGITAL
OPERATIONS

Tools



DIGITAL
OPERATIONS

Agenda

- 5S + 1
- Value-Stream Mapping
- Kaizen, and Kaizen Blitz
- Takt, Jidoka, Kanban
- Poka-yoke
- SMED



5S + 1

Seiri

- Sort
- Necessary vs. unnecessary
- Right quantity when needed
- Tagging
- Cost
- Example



Seiton

- Set in order
- Quick access
- Efficiency
- Organize/Labeling
- Frequency of use
- Visual
- A place for everything and everything in its place



Seiso

- Clean
- Mess prevention
- Shine and check
- Causal analysis
- Cleaning schedule
- Cleanliness campaign



Seiketsu

- Standardization
- Cleanliness
- Tools
- Visual controls
- Prevention
- Identical workstations
- Preventive maintenance
- Implementation steps



Shitsuke

- Standardization
- Cleanliness
- Tools
- Visual controls
- Prevention
- Identical workstations
- Preventive maintenance
- Implementation steps



Safety

- Uncluttered workplace
- Well maintained equipment
- Clean workspace



5s + 1 Summary

- Seiri (Sort): Sort only what is needed where is needed.
 - Seiton(Simplify): A place for everything and everything in its place.
 - Seiso (Sweep): Clean the workspace and keep it clean.
 - Seiketsu (Standardize): Standardize the first three "S."
 - Shitsuke (Sustain): Stick to the first 4S.
- +
- Safety: Provide a safety environment for everybody.



Value Stream Mapping

- Flow of inventory and information
- Identify and eliminate waste
- Value as defined by customer
- Optimum value
- Identify value stream
- Current state
- Future state



Kaizen

- History of kaizen
- Continuous improvement
- Humanize workplace
- Small improvements
- Kaizen tools
 - PDCA cycle
 - 5 Whys
 - Ishikawa



Kaizen Blitz

- Kaikaku (Japanese word)
- Kaizen in short timescale
- Focused events
- Rapid improvement
- Small improvements



Takt

- Takt time
- Pull scheduling
- Customers buying rate
- TAKT time formula
- Efficiency



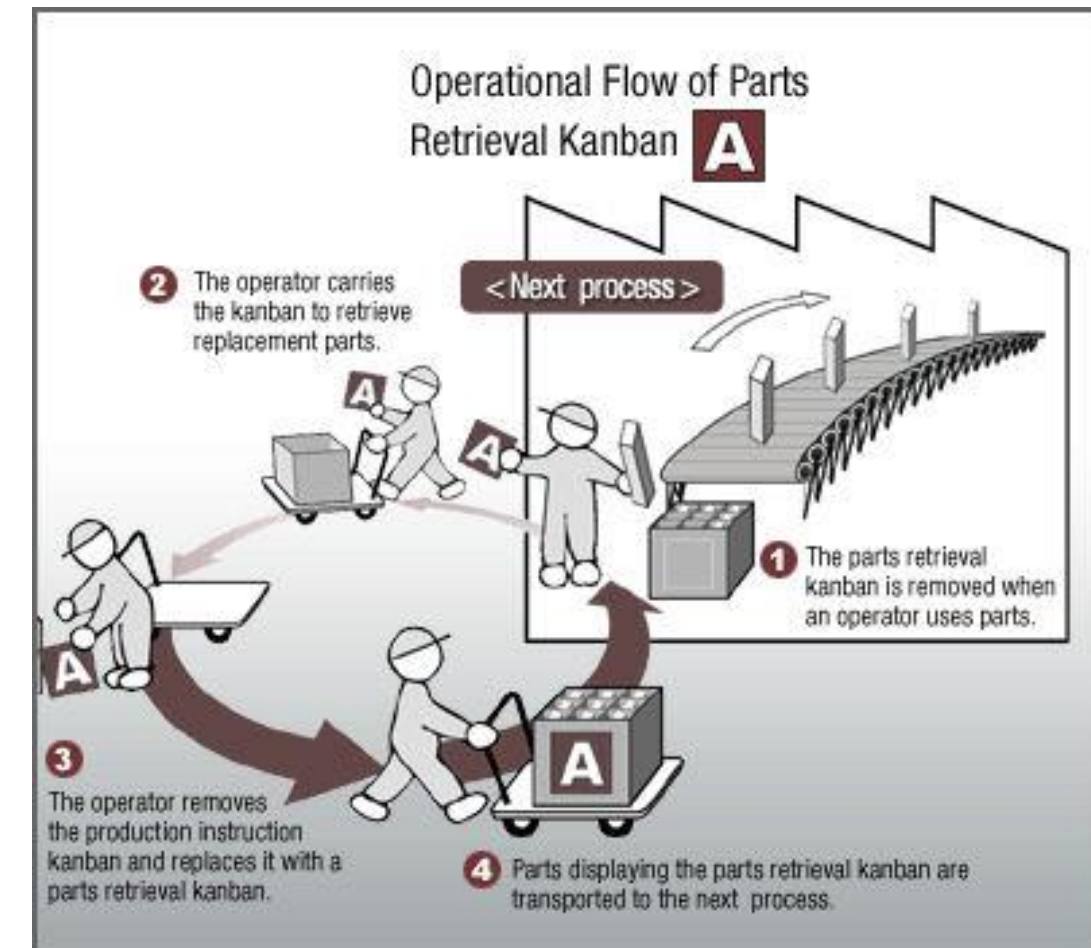
Jidoka

- Quality at source
- Autonomation (Intelligent automation)
- Required quantity
- Process malfunctions
- Product defects
- Alerting



Kanban

- History
- Scheduling System for JIT
- Based on Supermarket
- Pull System
- Kanban Cards
- Three-Bin System Example



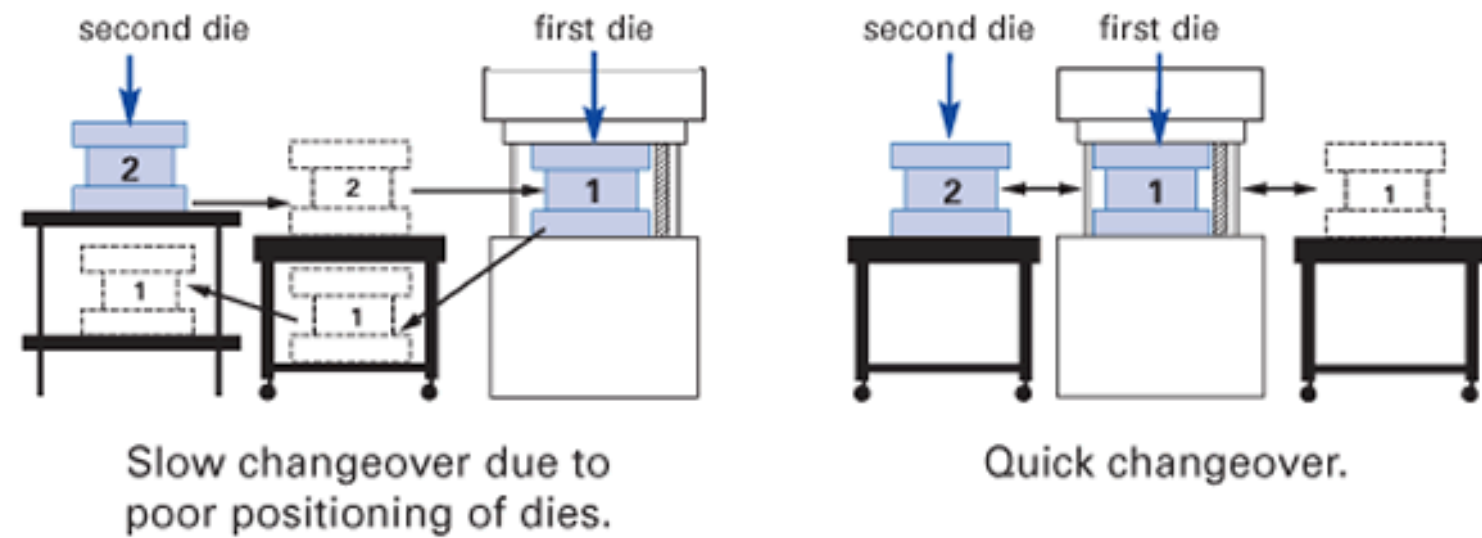
Poka Yoke

- History
- Mistake proofing
- Defect prevention
- Three types (Contact, fixed value, motion)
- Implementation in manufacturing
- Implementation in service



SMED

- Single-Minute-Exchange of Die
- History
- Quick Changeover
- Less Inventory
- Improved Flow
- Examples

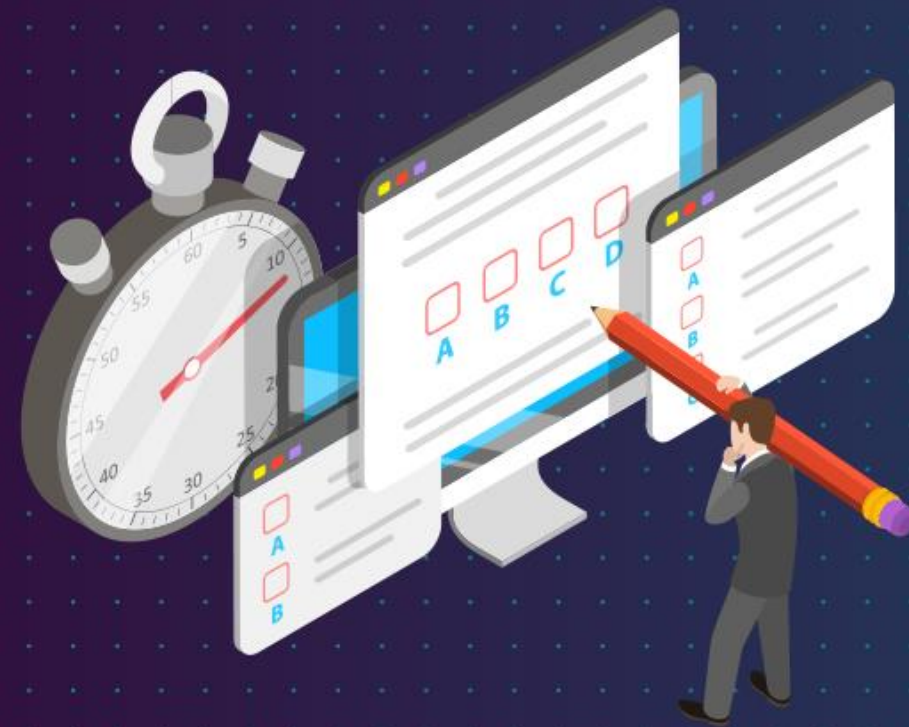


Example of Single Minute Change of Die (SMED).

Summary

- 5S + 1
- Value-Stream Mapping
- Kaizen, and Kaizen Blitz
- Takt, Jidoka, Kanban
- Poka-yoke
- SMED





Knowledge Check

Knowledge Check

1

What are the 5 phases of 5S?

- A. Shine, Shut-Up, Sustain, Sort, Standardize
- B. Sustain, Sort, Standardize, Sushi mi, Shine
- C. Sort, Set-in-Order, Shine, Standardize, Sustain
- D. Sort, Sustain, Sushi, Shine, Standardize

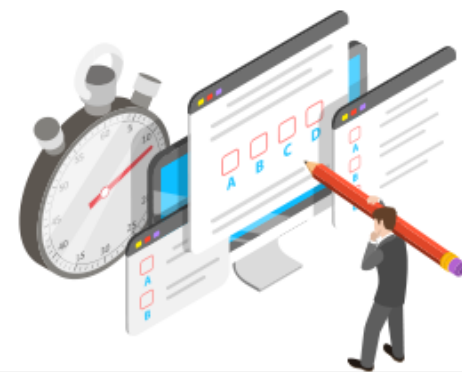


Knowledge Check

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What are the 5 phases of 5S?

- A. Shine, Shut-Up, Sustain, Sort, Standardize
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- C. Sort, Set-in-Order, Shine, Standardize, Sustain
- D. Sort, Sustain, Sushi, Shine, Standardize



The correct answer is **C**

The five steps in 5S are Sort, Set-in-Order, Shine, Standardize, and Sustain.

Knowledge Check

2

Red tags are first used in what step of 5S?

- A. Set in Order
- B. Sort
- C. Standardize
- D. Separate

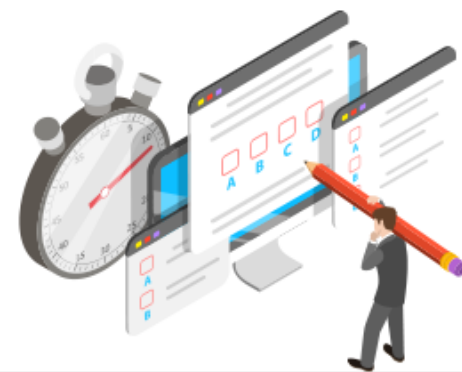


Knowledge Check

2

Red tags are first used in what step of 5S?

- A. Set in Order
- B. Sort
- C. Standardize
- D. Separate



The correct answer is **B**

Work area personnel record the date of an item's last use on these tags, along with other information used to justify removal. Red tags are first used, as needed, in sort to identify items for removal, in all subsequent steps during and after implementation.

Knowledge Check

3

What does PDCA stands for?

- A. Process Delegating Control Automation
- B. Plan Do Check Act
- C. Personal Data Calendar and Assistant
- D. Prepare, Deliver, Check and Act



Knowledge Check

3

What does PDCA stands for?

- A. Process Delegating Control Automation
- B. Plan Do Check Act
- C. Personal Data Calendar and Assistant
- D. Prepare, Deliver, Check and Act



The correct answer is **B**

PDCA stands for Plan, Do, Check, Act.

Knowledge Check

4

Kanban is based on a model of?

- A. Shipyards
- B. Automotive assembly lines
- C. Supermarkets
- D. Software



Knowledge Check

4

Kanban is based on a model of?

- A. Shipyards
- B. Automotive assembly lines
- C. Supermarkets
- D. Software



The correct answer is **C**

Taiichi Ohno was inspired by the American supermarket's working and applied to auto industry.