THE LEAN ENGLISH PODCAST

Episode 2: Lean management

Part 2

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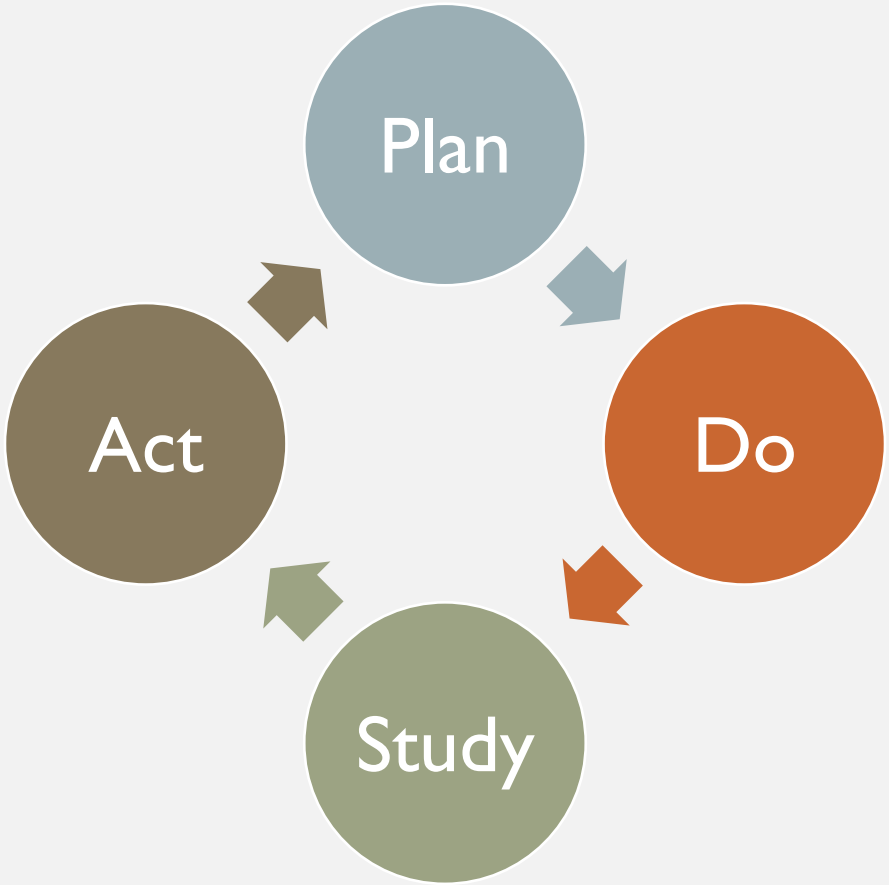
PDSA

1. Document all your ideas for an improvement, innovation or new method, and then brainstorm for new ideas. Then decide which to test during an experiment.
2. Once the experiment is planned, carry out the test, comparison, or experiment, preferably on a small scale.
3. Study the results. Evaluate what happened during the test. Measure the influence of the inputs on the outputs. Document what you learned.
4. Use what you learned to act. Adopt a change, abandon a previous idea, or run through the cycle again, possibly under different environmental conditions.



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VALUE MAPPING A PROCESS

- Value stream maps follow the process as it moves through departments, operators and steps.
- Each step's processing time is calculated to determine if it is Value Added (VAT) or Non-Value Added (NVAT).
- Symbols and lines are drawn to indicate the flow of materials or information, and inputs and outputs are identified before and after steps.
- Drawing the map is a product of intense study by subject matter experts or a specially formed Tiger Team.

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8 FORMS OF WASTE

- Transportation – moving anything without benefiting the customer
- Inventory – a cost without being saleable
- Motion – unnecessary motion must be eliminated
- Waiting – gaps in the production flow
- Over-Processing – also known as ‘gold plating’, adding features but not value
- Over-Producing – if it cannot be sold, why are we making it?
- Defects – each defect is an opportunity to lose a customer
- Under-utilization of personnel – wasted talent

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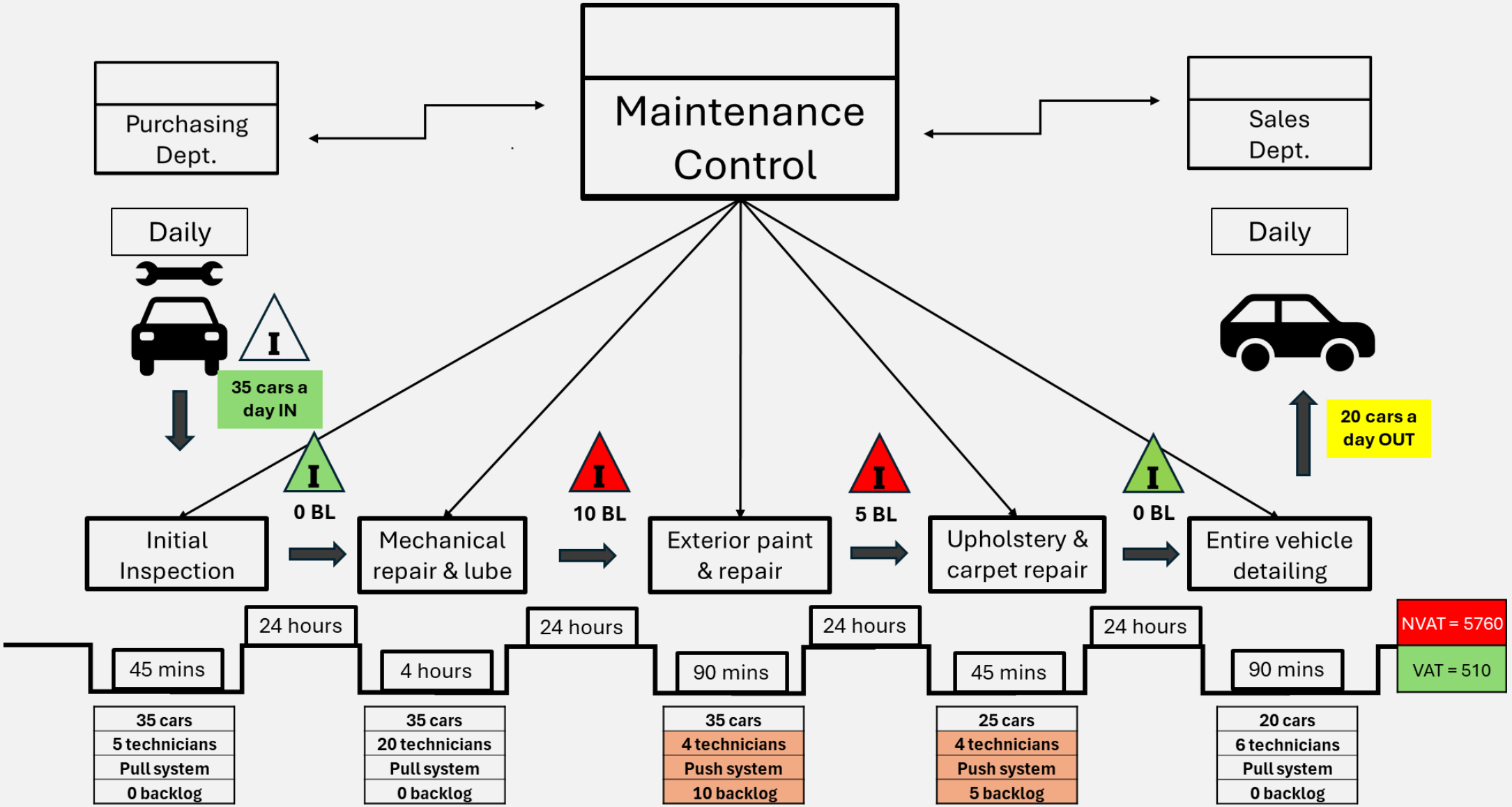
VALUE STREAM MAP



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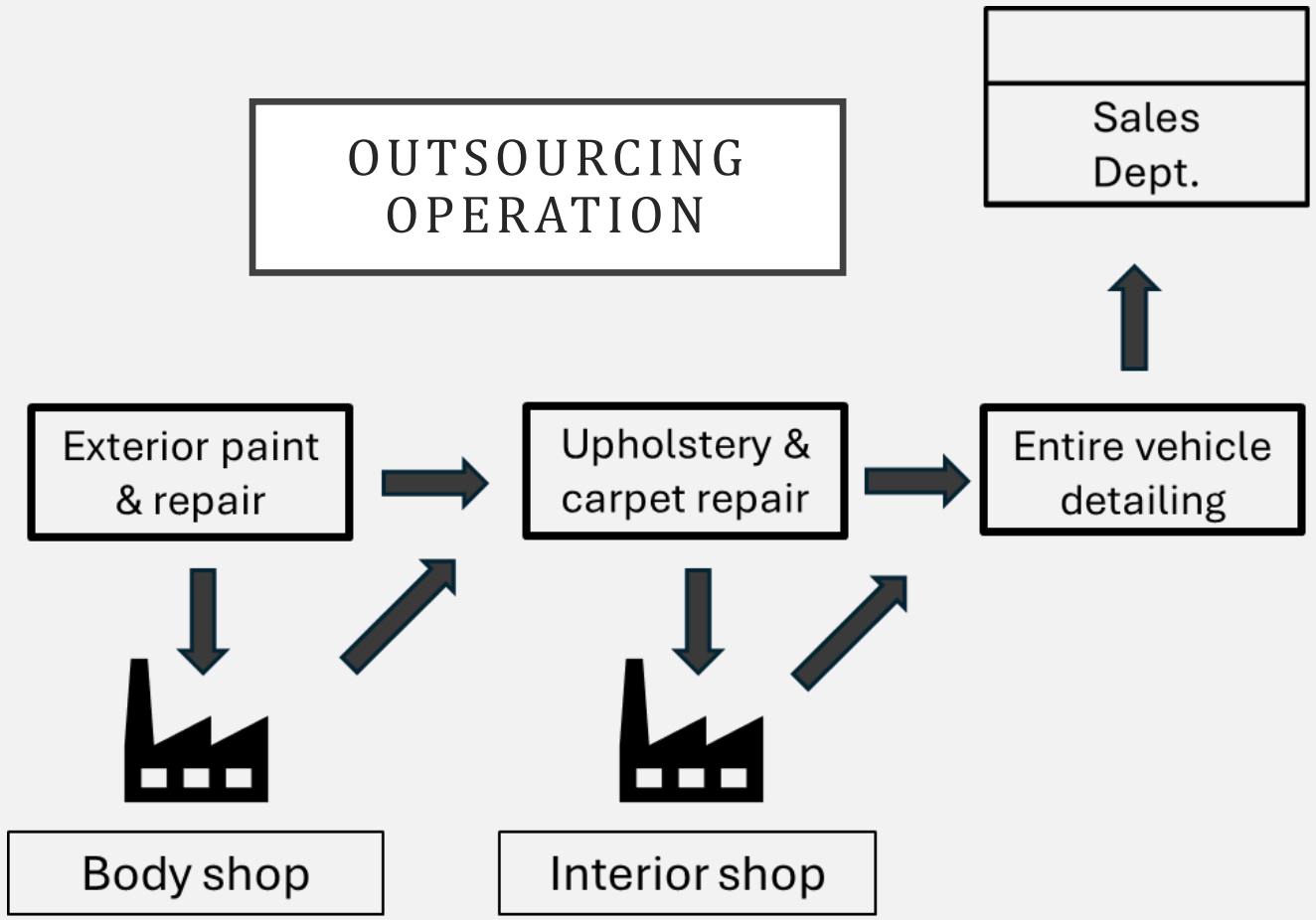
VSM, PART II



- Subcontractors were hired to reduce the backlog at the paint and upholstery repair shops.
- This caused the company to use a push system because they were not properly staffed.
- Using subcontractors reduced the inventory backlog and improved our productivity but increased overall costs.

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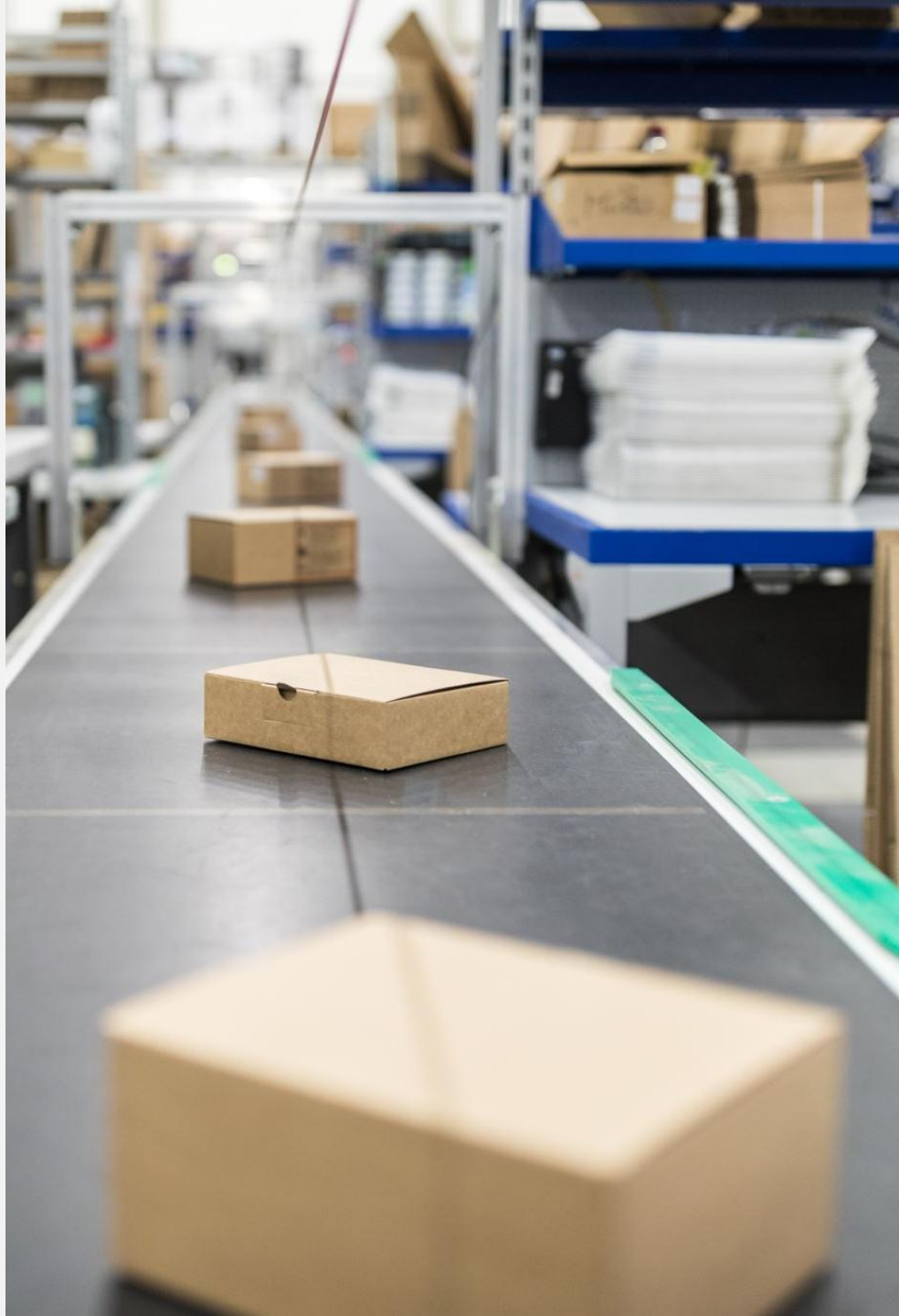
INVENTORY MANAGEMENT

- Toyota did not have the capital to carry inventory like American automakers.
- During a visit in the 50's, Toyota execs noticed that Ford's production was still mass production of inventory; not much progress had been made.
- Soon they discovered the key to inventory management with JIT and Pull.



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JUST IN TIME

- On a trip to the US, Toyota executives noticed the use of a pull system in US supermarkets; replacing only what has been purchased by the customer.
- Kiichiro Toyoda noticed the benefit it would have on his small production facility.
- With no space in the small factory to store parts and supplies, this system allows the production to run smoothly with minimal effort.
- Also, if managed properly, it will help surface problems in *Heijunka*.
- How does your production system flow?

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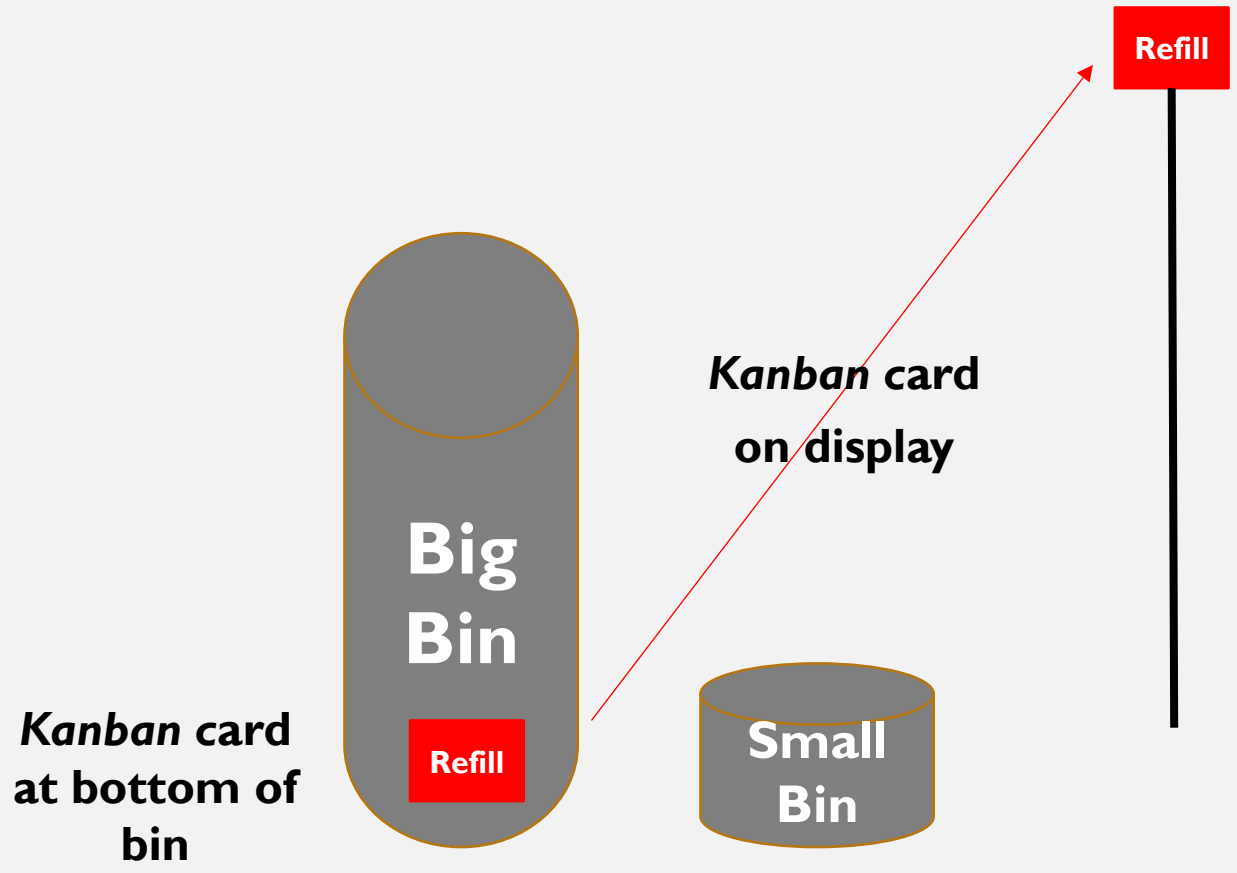
KANBAN CARD DISPLAY

- An easy way to replenish workstations without interrupting flow is to use the Kanban card system, a type of visual management.
- In a factory, they indicate when a worker needs additional resources or when supplies need to be restocked.
- This slide details a set up where we use the parts in the Small Bin while waiting for a delivery to fill the Big Bin.



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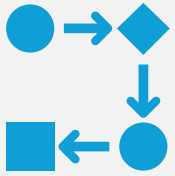
LEAD, TAKT & CYCLE TIME

To synchronize your one-piece flow, it is beneficial to understand the rate of production with these measures.



Lead time is the time it takes for a company to fulfill an order.

There are internal and external lead times that need to be measured.

TAKT time is determined by customer demand: Takt = time available/units required.

If I have 8 hours to make 40 parts, I will need to make 5 parts per hour. Therefore, the takt time is 12 minutes.

Cycle time is the time required to complete one cycle of an operation.

Reducing variation in cycle time makes a system more predictable.

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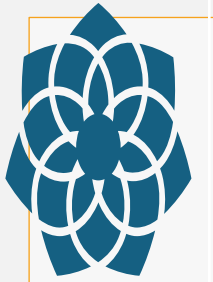
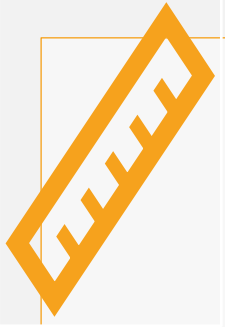
STANDARD WORK

Even before the PDSA (Plan-Do-Study-Act) cycle is employed, it is essential that the current standards be stabilized.



Such a process of stabilization is often called the SDCA (Standardize-Do-Check-Act) cycle.

Only when the SDCA cycle is at work can we upgrade the current standards through the PDSA cycle.



There can be no improvement where there are no standards. There must be a precise standard of measurement for every worker, every machine, and every process.

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POKA-YOKE

- Poka-yoke shows up throughout Lean manufacturing because it focuses our attention on the needs of the customer or worker.
- In design, it requires the designer to ask, "what is the simplest way I can design this product so it can be used only in the manner intended?"
- In the Visual Factory it provides the worker on the assembly line only one way to complete a task.

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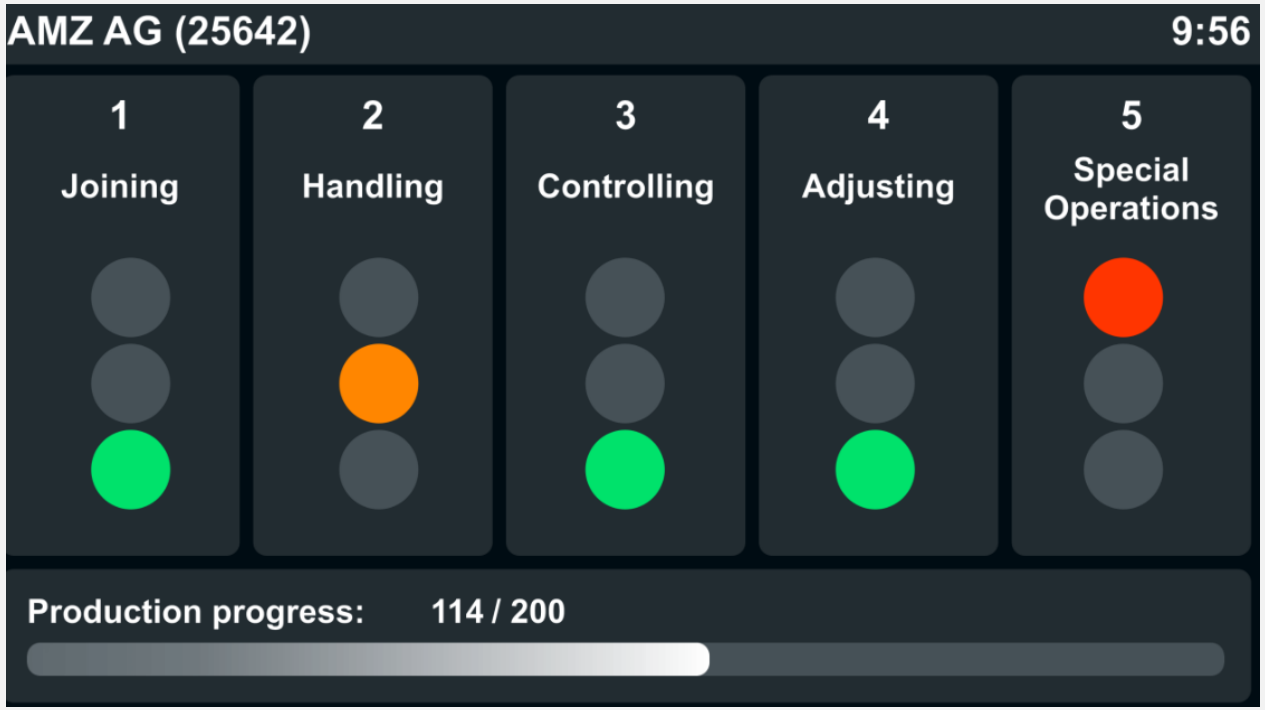
VISUAL MANAGEMENT: ANDON

- In Lean manufacturing environments, an Andon board alerts the supervisor that there is a defect on the production line.
- Management empowers the workers to stop the production line by pushing a button or pulling a cord.
- As soon as the line has stopped, the supervisor rushes to the site to perform a root cause analysis.
- This is based on the notion that prevention costs are less than all other quality costs.



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5S METHODOLOGY

- 5Ss: 5 Japanese words that help keep your workstation ready. They are:
  - Seiri – to separate needed tools from unneeded materials (Sort)
  - Seiton – neatly arrange and identify parts and tools for use (Straighten)
  - Seiso – conduct a cleaning campaign (Sweep)
  - Seiketsu – to conduct the first 3 daily or at frequent intervals; to maintain a workshop in perfect condition (Standardize)
  - Shitsuke – to form the habit of always following the first 4 (Sustain)
- The 5 S system is often a starting place for implementing Lean operations, so it is important that it be done properly.

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