

Lean Management



DIGITAL
OPERATIONS

Types of Waste

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OPERATIONS



Agenda

- 👁 The Main Ones
- 👁 Others



The Types of Waste

Transportation

- **Definition:** Any movement of materials, supplies or resources that does not add value to the internal or external customer needs
- **Characteristics**
 - Extra carts, fork lifts
 - Multiple storage locations
 - Complex inventory management
 - Extra facility space
 - Improper facility layout



Inventory

- **Definition:** Any supply in excess to process requirements necessary to produce goods or services just in time
- **Characteristics**
 - Material between processes
 - Additional material handling resources
 - Additional investment / cost
 - Storage space
 - Perishable, damage and obsolescence
 - LIFO instead of FIFO



Motion

- **Definition:** Any movement of people, resources or machines which does not contribute/add value to the product or service
- **Characteristics**
 - Human motion
 - Lack of visual controls
 - Looking for tools
 - Material too far apart (walk time)
 - Machine motion



Waiting

- **Definition:** Long period of inactivity for people, machine, or material waiting for each other
- **Characteristics**
 - Improper scheduling
 - People waiting for machine or resources
 - Poor material planning
 - Late Deliveries
 - Unbalanced operations



Over-Production

- **Definition:** Producing faster or excess quantity than the internal or external customer needs
- **Characteristics**
 - Just-in-case reward system
 - Large lot size batch processing
 - Improper demand planning/Unbalanced material flow
 - Producing early
 - Inventory stockpiles



Over-Processing

- **Definition:** Effort which adds NO value to a product or service. Enhancements which are not valued by customers.
- **Characteristics**
 - Lack of clear customer specifications
 - Endless refinement
 - Redundant approvals
 - Extra copies or excessive information



Defect

- **Definition:** Rework needed to rectify the defect in product or service to fulfill customer requirements
- **Characteristics**
 - Quality problems
 - Extra resources to inspect/test/rework
 - Insufficient training
 - Inconsistent work methods, tools
 - Excessive variation



Other Types of Waste

Underutilized Skills

- ✓ **Definition:** Any skill that is not utilized to its full potential leading to customer value
- ✓ **Characteristics**
 - Skills based compensation
 - Over qualification
 - Under performance
 - Morale



Wrong Use of Automation

- **Definition:** Any automation that is taking longer than manual work or creating additional work
- **Characteristics**
 - Over automation
 - Under automation
 - Unnecessary automation
 - Automation defects/rejects
 - Examples



Wrong Use of Metrics

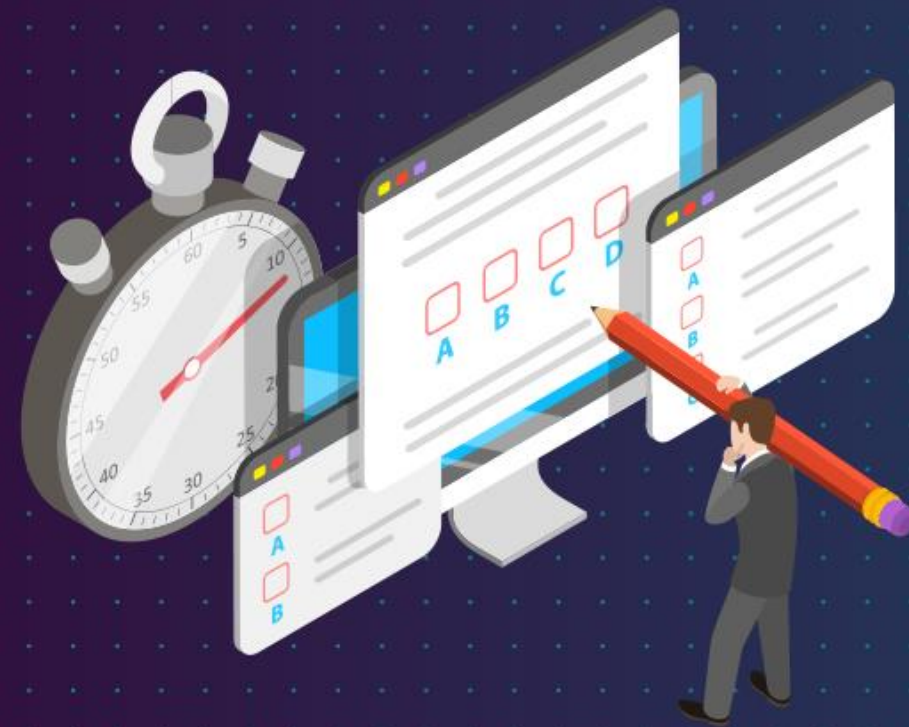
- **Definition:** Any metrics that is incorrectly measured, inappropriately used or misinterpreted is another type of waste
- **Characteristics**
 - Incorrect data collection
 - Inappropriate use
 - Misinterpretation
 - Misaligned targets or goals
 - Examples



Summary

- Seven Main Types of Waste
- Other Types of Waste





Knowledge Check

Knowledge Check

1

Which of the following is not one of the seven wastes?

- A. Overproduction
- B. Transporting
- C. Excess machine capacity
- D. Waiting



Knowledge Check

1

Which of the following is not one of the seven wastes?

- A. Overproduction
- B. Transporting
- C. Excess machine capacity
- D. Waiting



The correct answer is **C**

The main seven types of waste do not include excess machine capacity. While it is in some form of potential waste of resource, but it is not part of the seven main waste types.

Knowledge Check

2

What are the main seven types of waste?

- A. Transportation, inventory, motion, waiting, over-production, over-processing, defects
- B. Money, software, entertainment, waiting, resources, under-utilized machines, excess machine capacity
- C. Inventory, storage, misalignment, overheating, electricity, chatting, communication
- D. Transportation, inventory, motion, waiting, underutilized money, over-processing, communication

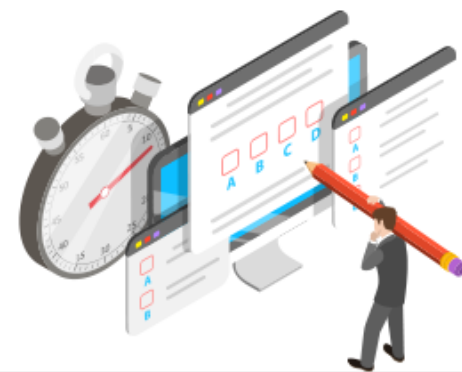


Knowledge Check

2

What are the main seven types of waste?

- A. Transportation, inventory, motion, waiting, over-production, over-processing, defects
- B. Money, software, entertainment, waiting, resources, under-utilized machines, excess machine capacity
- C. Inventory, storage, misalignment, overheating, electricity, chatting, communication
- D. Transportation, inventory, motion, waiting, underutilized money, over-processing, communication



The correct answer is **A**

The main seven types of waste are Transportation, inventory, motion, waiting, over-production, over-processing, defects.