# Seven Wastes

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<sup>\*</sup>Contents included in the presentation are informed by our study of the Toyota Production System

## **Workshop Definition**

 To give practical help to see waste hiding in plain sight. Waste can appear in several forms and often it looks like useful work!

 In a Lean culture, waste is defined as anything that doesn't add value to your customer.

How well do you know your wastes?



## Agenda

- What is your customer willing to pay for?
- Environmental Conditions of Waste
- 7 Wastes
- Lean Solutions
- Questions





## What is your Customer Willing to Pay For?

Value Add work

- Non Value Add work
  - Necessary
  - Unnecessary



### **Environmental Conditions of Waste**

Unevenness (Mura)

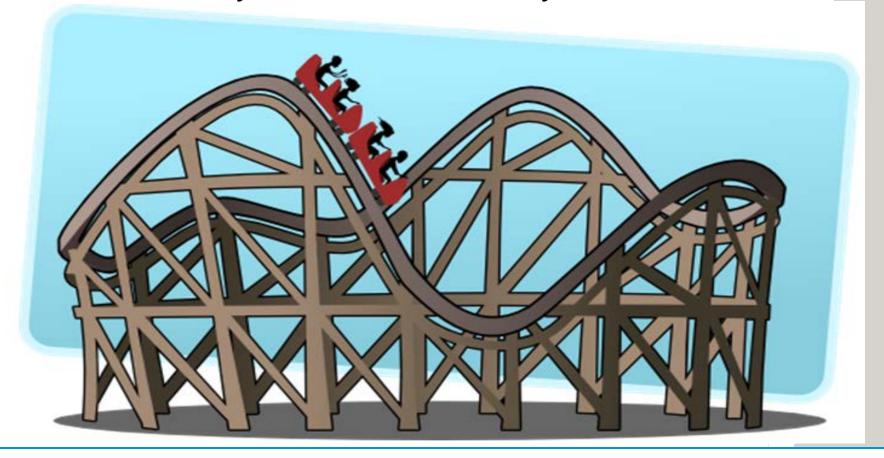
Overburden (Muri)

Waste (Muda)



## **Unevenness**

Seasonality, market-driven, cyclic fluctuation





## Overburden

 Overburden creates a sense of crisis which causes us to protect ourselves





## **Customers are NOT willing to Pay for Waste**

Does not add value to the product or service





## 7 Wastes

- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



<sup>\* 7</sup> Wastes as identified by Taiichi Ohno

## 7 Wastes: Overproduction

 Producing more than your customer is requesting or before they request it



- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



## 7 Wastes: Inventory

More materials or information than is required

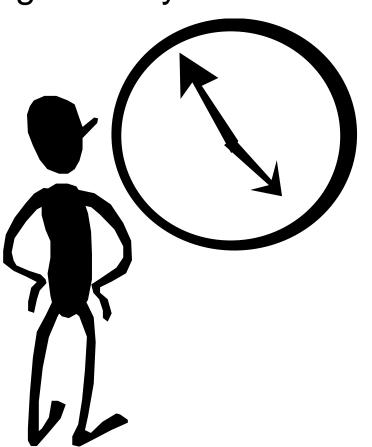


- 1. Overproduction
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## 7 Wastes: Time/Waiting

Waiting done by customers or by employees



- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



## 7 Wastes: Transportation

 Unnecessary conveyance of products, from one location to another, or handoff from one employee to another



- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



## 7 Wastes: Processing

 Unnecessary manual work that does not contribute value to the product



- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



### 7 Wastes: Motion

 Unnecessary physical or mental motion often associated with searching



- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



### 7 Wastes: Defects

A mistake which reaches the customer



- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



## 7 Types of Waste

- 1. Overproduction
- 2. Inventory
- 3. Time/Waiting
- 4. Transportation
- 5. Processing
- 6. Motion
- 7. Defects



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#### **Lean Solutions**

## Premera Production System Deliver Only What Customers Value

# Operate with the <u>minimum</u> resources required to consistently deliver:

Just-in-time

- Just what is needed
- •In *just* the required amount
- Just where it is needed
- Just when it is needed

#### **Objectives** Methods **Principles** Appropriate and Pace Standard Work (Takt Time) efficient use of Sequence Production people's talent Appropriate and Standard Work minimum levels One-piece flow In Process of material Appropriate and Alarm (Andon) Pull System optimal use of Autonomous machines Maintenance

#### Autonomation (Jidoka)

One-by-one confirmation of quality

Stop and *respond* to every defect

Separate machine work from human work

Enable machines to *detect* defects and stop automatically

#### Level Production (Heijunka)

#### Continuous Elimination of Waste (Muda)

Visual Management reveals waste and inconsistent or unexpected results Problem Solving removes waste and helps restore consistency



## **Lean Solutions**

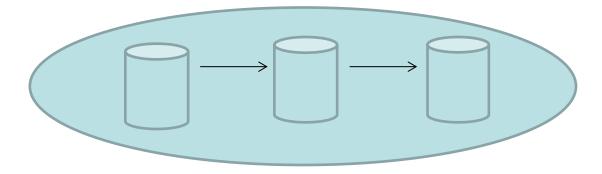
First you must see it – MAKE IT VISIBLE!



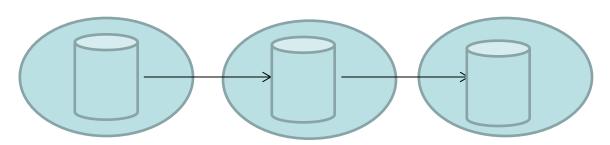


## **Lean Solutions - Value Stream Mapping**

You can **See** and **Identify Waste** as you connect your processes from start to finish



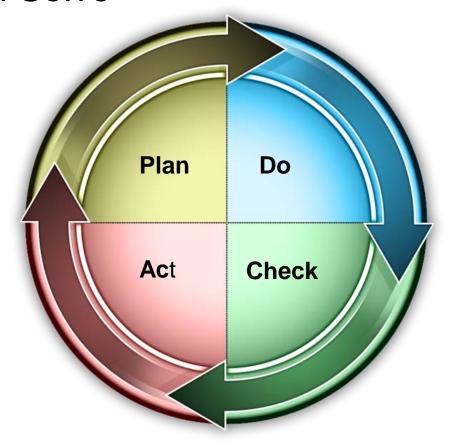
Verses a Silo Approach





## **Lean Solutions**

Problem Solve





## **Lean Solutions**

Keep watching





## Challenge

Do you reward firefighting?

Do you wait until there's time-pressure to plan?





## **Questions**



