

Pull Manufacturing

Kanban, Just in Time, Demand Flow

Superfactory Excellence Program™

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Outline

- Why Pull Manufacturing?
- The Problem of Inventory
- Just In Time
- Kanban
- One Piece Flow
- Demand / Pull
- Standard Work & Takt Time
- Production Smoothing

Why Pull Manufacturing?

Lean manufacturing is really about minimizing the need for overhead

- which is about concentrating precisely on *only* what is necessary
- which is about linking interdependent supply system decisions, and actions
- which needs to be visual, responsive and simple to manage

Push Vs. Pull Scheduling

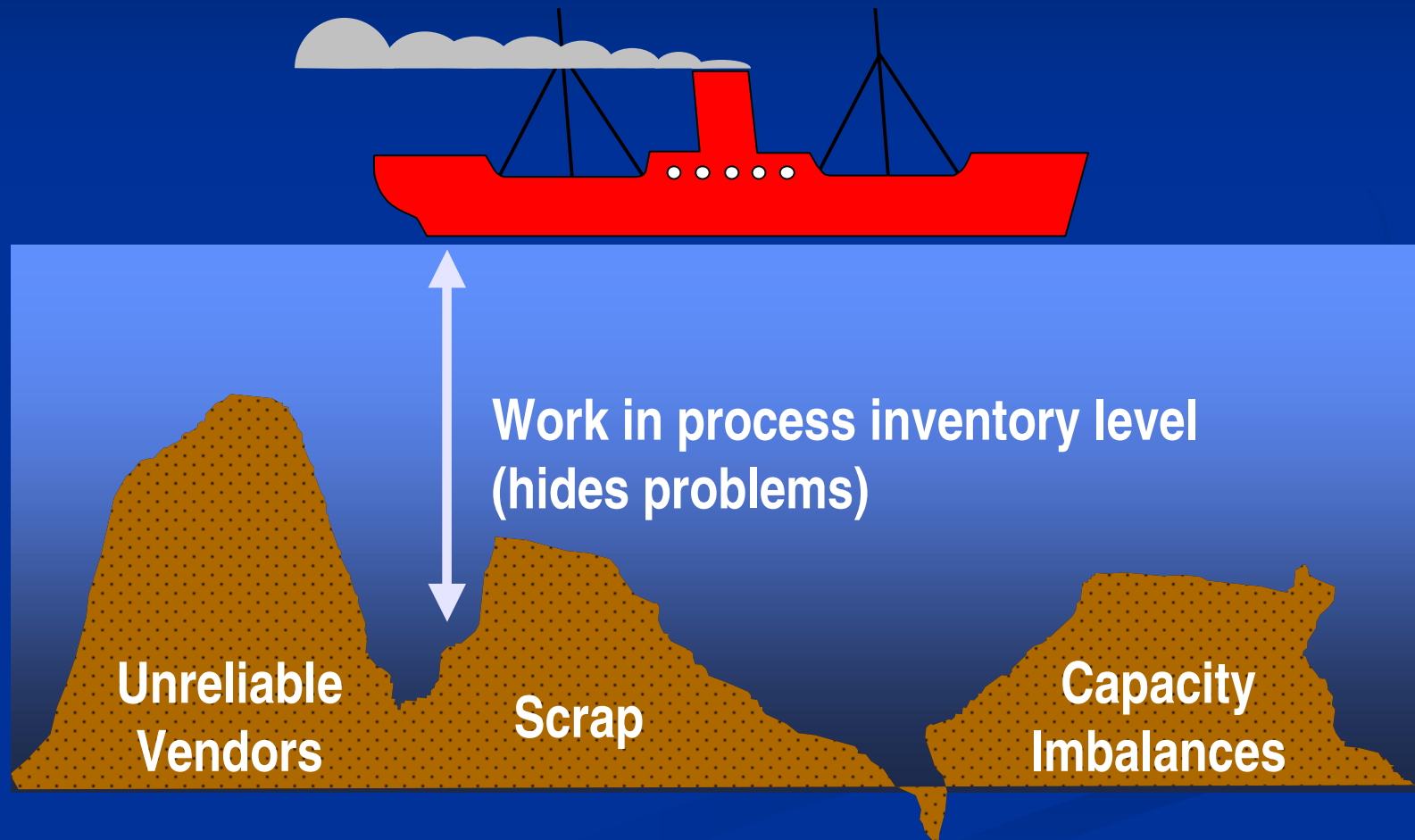
- Push Scheduling
 - traditional approach
 - “move the job on when finished”
 - problems - creates excessive inventory
- Pull scheduling
 - coordinated production
 - driven by demand (pulled through system)
 - extensive use of visual triggers
(production/withdrawal kanbans)

Inventory: Root of all evil

If the meaning of production control is truly understood,
inventory control is unnecessary.

-- Taiichi Ohno

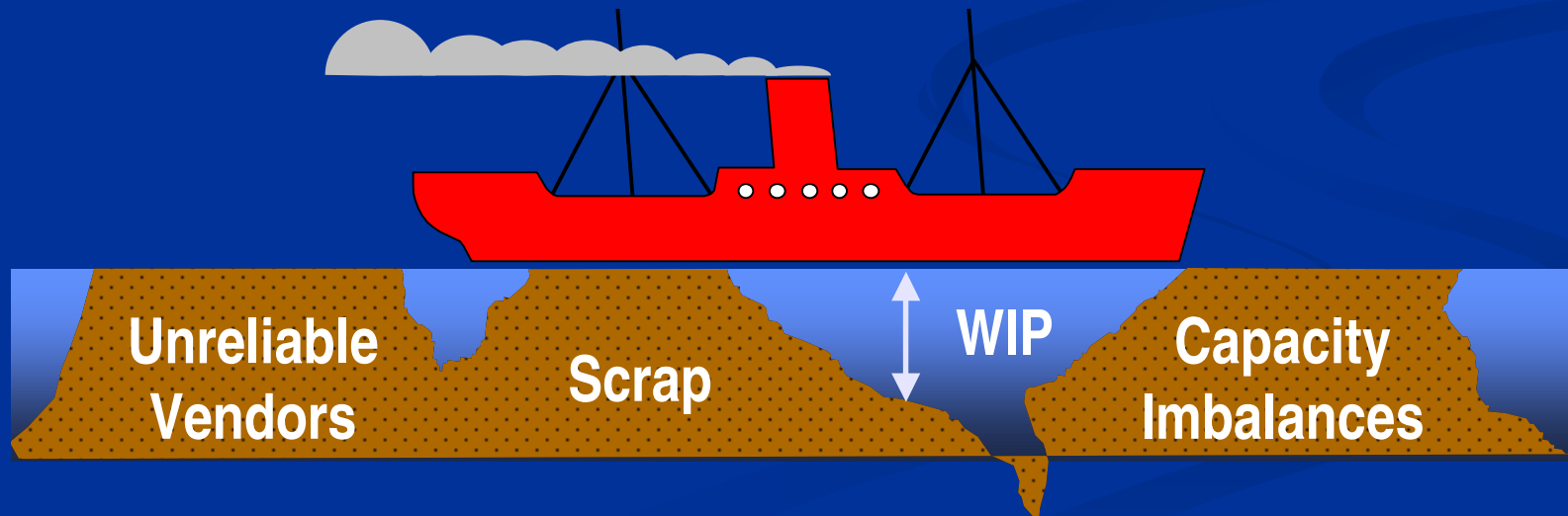
Inventory Hides Problems



Lowering Inventory Reveals Problems

Accommodate lower inventory levels by:

- Reducing variability
- Eliminating waste
- Streamlining production and material flows
- Accurate information



What is Just-in-Time?

- Management philosophy of continuous and forced problem solving (forced by driving inventory out of the production system)
- Supplies and components are 'pulled' through system to arrive where they are needed when they are needed

Goal: Achieve the minimal level of resources required to add the necessary value in the production system.

Objective of JIT

To eliminate waste

by

Producing the needed item

at the right time

and the exact quantity