Pull Manufacturing
Kanban, Just in Time, Demand Flow

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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

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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

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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)

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Inventory: Root of all evil

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

-- Taiichi Ohno

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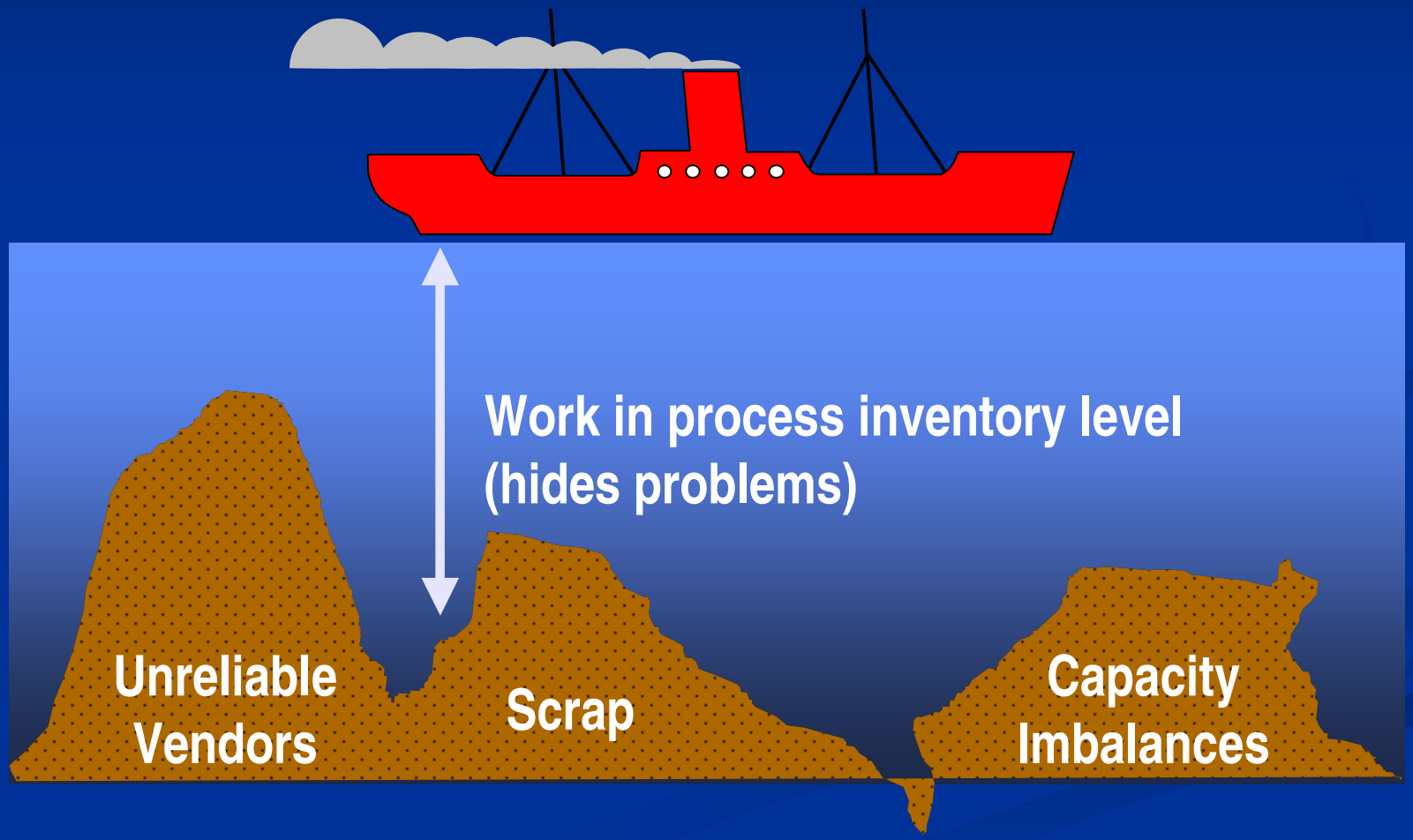
Inventory Hides Problems



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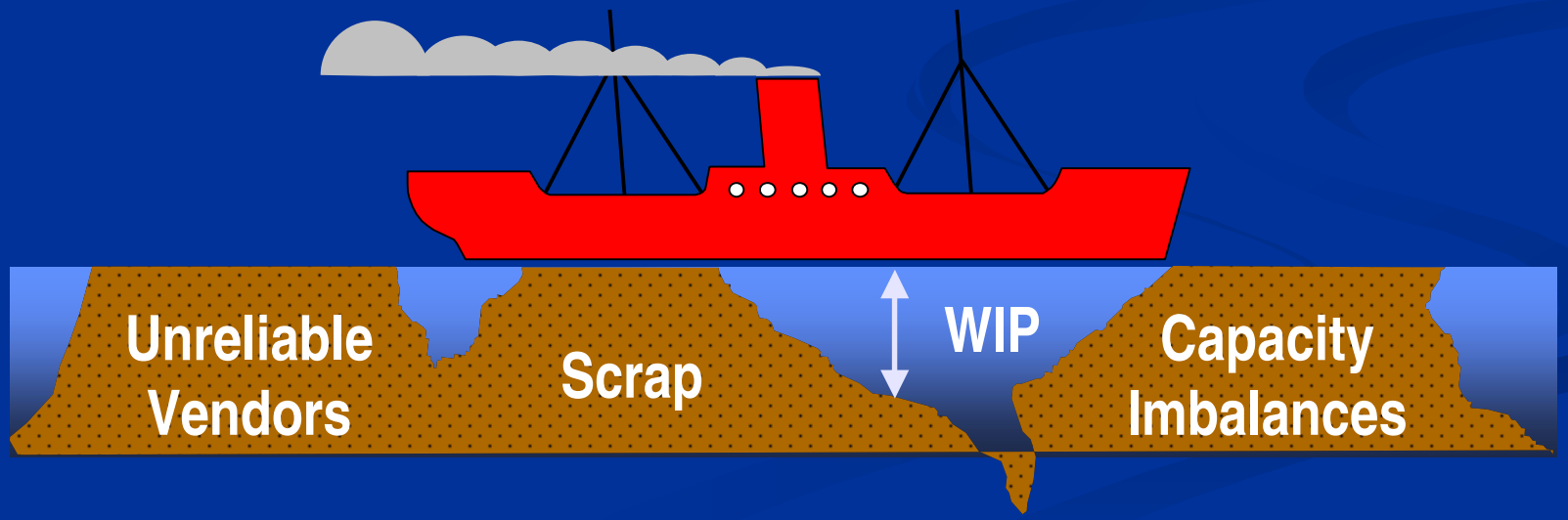
Lowering Inventory Reveals Problems

Accommodate lower inventory levels by:

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



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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.

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Objective of JIT

To eliminate waste

by

Producing the needed item

at the right time

and the exact quantity

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