



# Lean Perspective: Product & Inventory Management

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# Lean





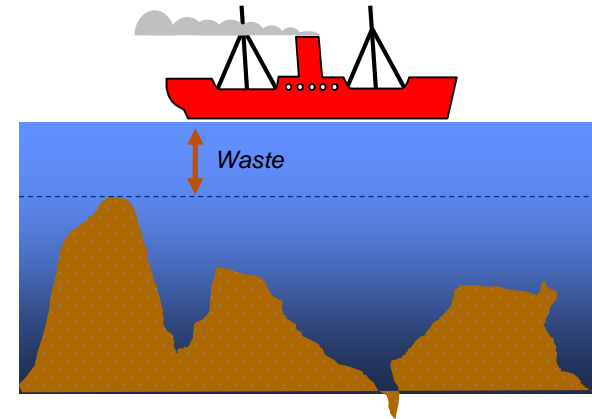
***Curre Lindström: "Lite bättre"***

# Eliminating waste and continuous improvement are central to lean

Muda and kaizen are the key concepts of lean



- **Principle 1: Eliminate all muda i.e. "waste"**
  - Removing all excess capacity and inventories, and removing all process steps that do not create value to the customer
  - As a result, each step produces only and exactly the amount needed by the following process step within the supply chain, which is the idea of pull production and single piece flow
  - As a result, operations are adapted to match consumer demand
- **Principle 2: Continuous improvement of quality and productivity i.e. kaizen**
  - Unnecessary muda hides problems of processes i.e. prevents and slows down development
  - Low inventory levels, periodical operational stress testing and following of lean principles is central for kaizen
  - One very concrete form of kaizen culture is providing monetary incentives for employees on improvement initiatives
    - E.g. Toyota had in 2007 over 740 000 improvement suggestions from employees

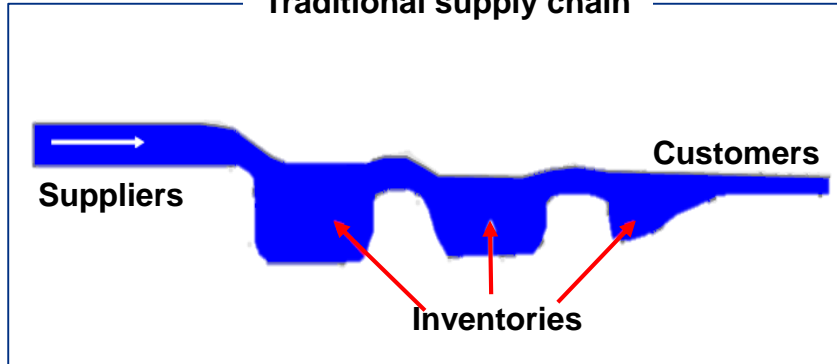


# Materials of the supply chain should flow like a river since inventories prevent development

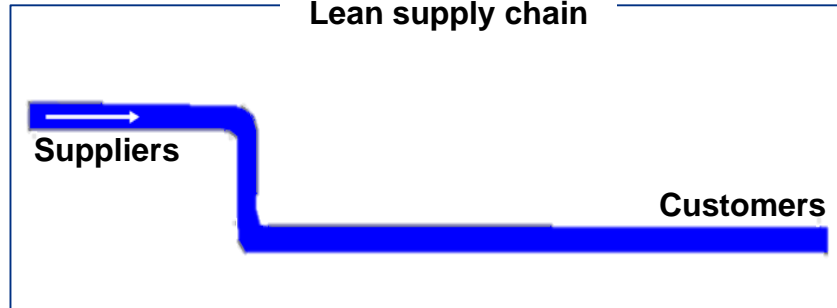


Customer-driven “pull”, single piece flow and inventory reduction

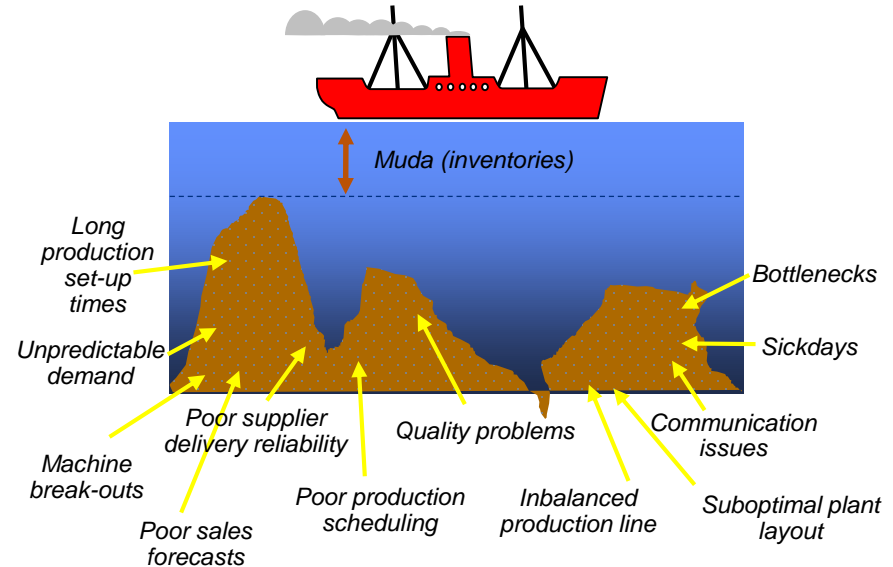
Traditional supply chain



Lean supply chain



Reduction of inventories enables continuous improvement



# Variation & unpredictability generates needs to build up excess inventories & buffers

Bullwhip effect: External & internal causes

Lean -> Continuous improvement downstream -> Reduced bullwhip upstream

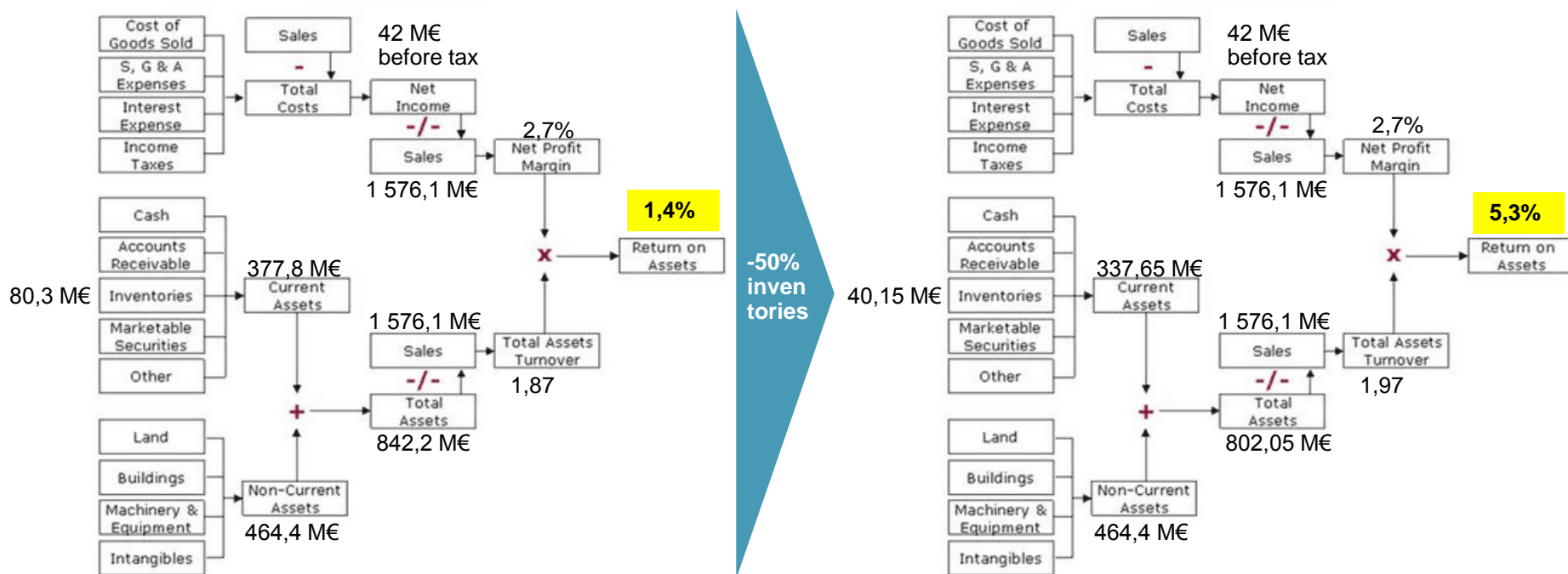


- External causes of bullwhip
  - Changes in demand
  - Changes in the product- and service-mix
  - Delayed supplier deliveries
  - Partial shipments
  - Supplier operational issues
- Internal causes of bullwhip
  - Raw-material stock-outs due to poor planning and forecasting
  - Changes in product specifications
  - Order batching
  - Campaigning
  - Poor information exchange

# Reducing inventories also frees up working capital and impacts Group key financials

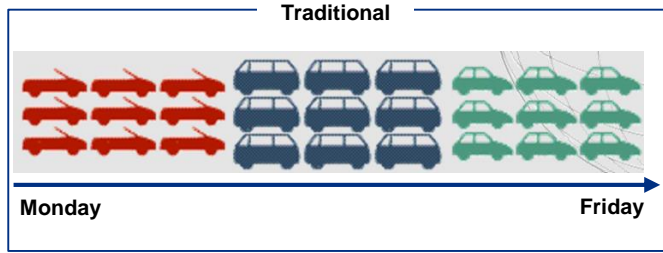


E.g. by halving inventories we could nearly quadruple Fazer ROA%

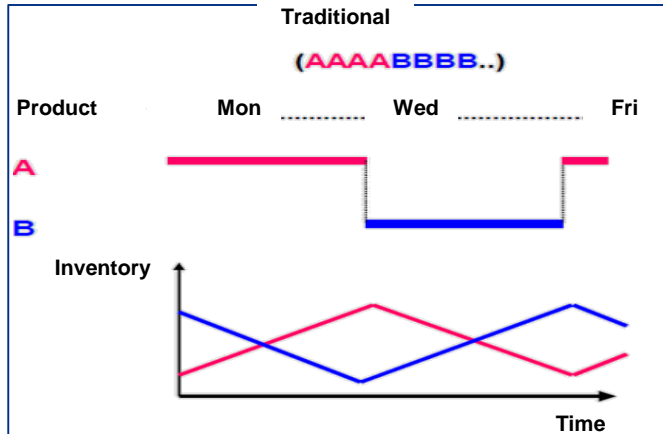
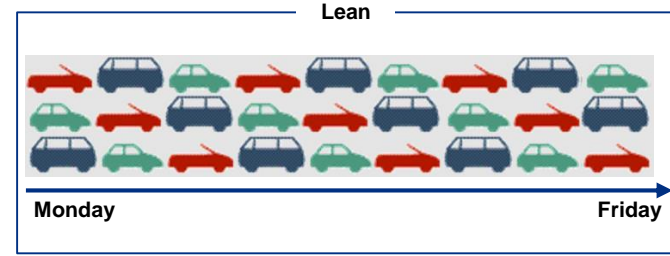


# One very concrete way of reducing inventories is reduction of batch size

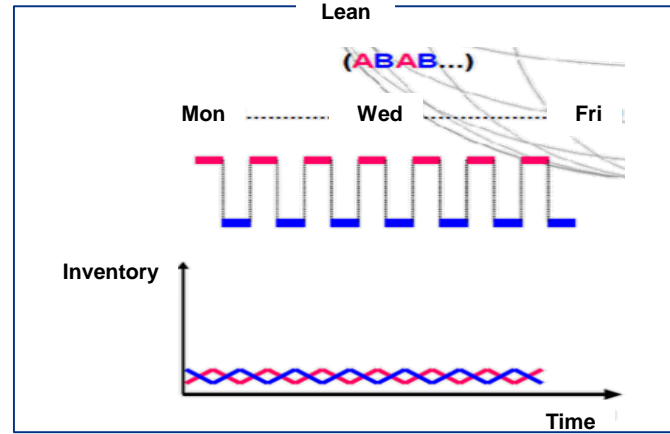
Smaller batch sizes result in decreased inventories



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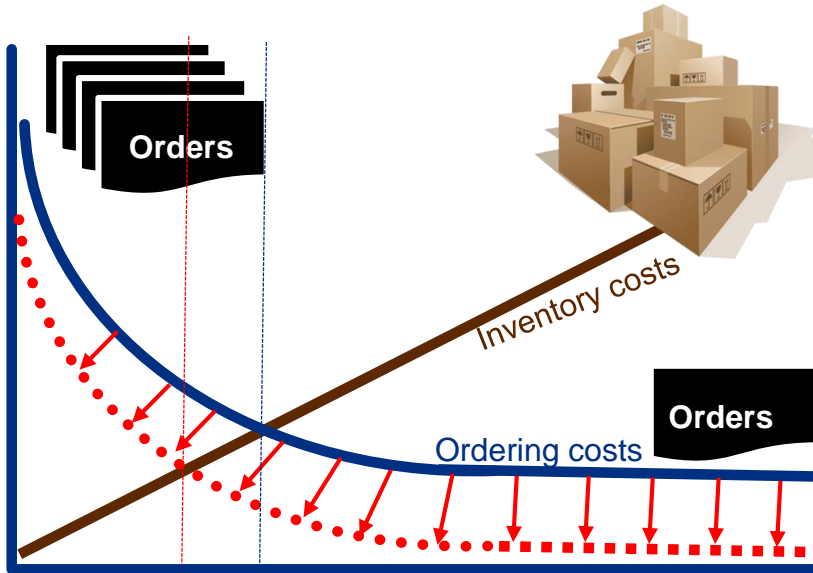


# Smaller batch sizes provide better flexibility & reduce inventories, but ordering costs more

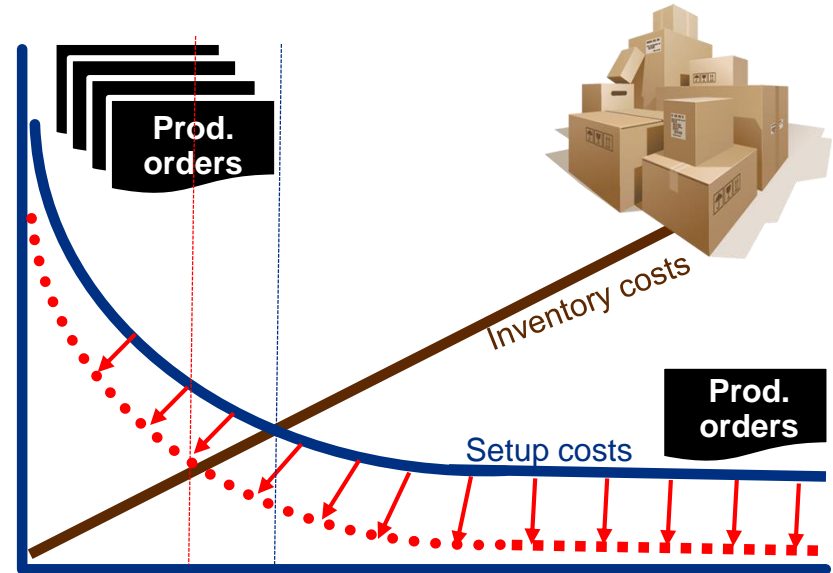


Key dimensions of optimal batch size are ordering and inventory costs

Impact of batch sizes to sourcing



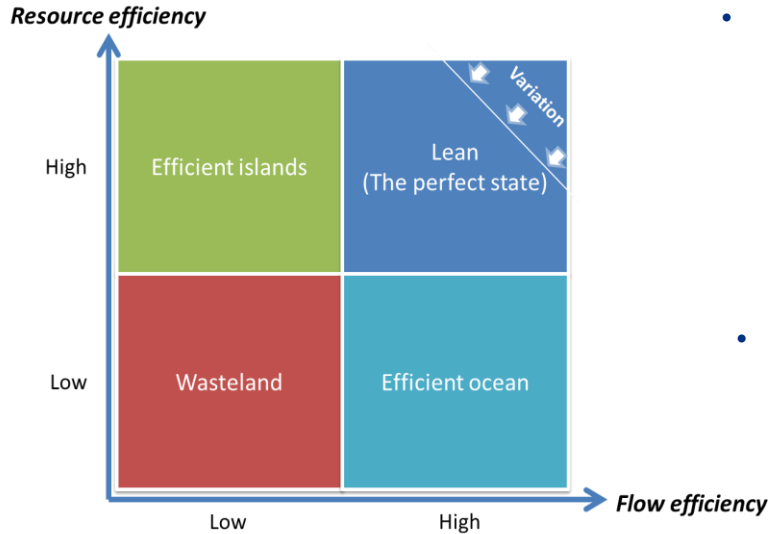
Impact of batch sizes to production



# Yet, in practice lean presents companies with a challenge: the productivity paradox

Fazer

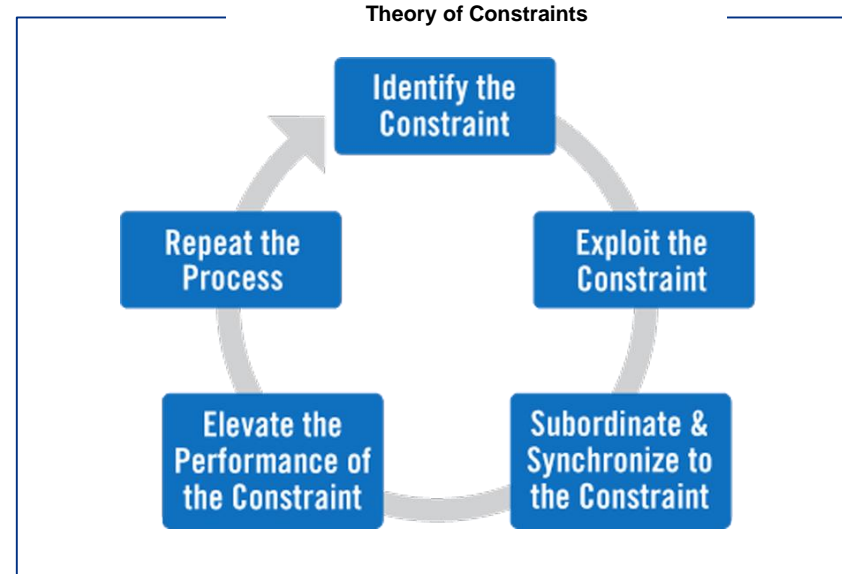
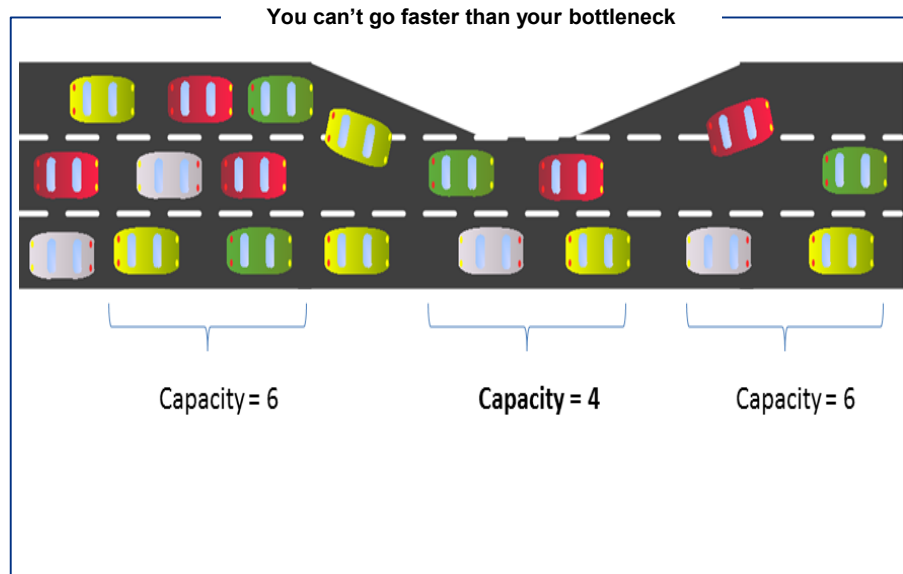
The productivity paradox: being resource & flow efficient at the same time



- **Resource efficiency focuses on optimizing utilization**
  - Traditional way of running the supply chain, “efficient islands”
  - High utilization of production lines and workforce
  - Long throughput times & lead times
  - High WIP & finished goods inventories
  - Large batches
  - Focus on unit costs
- **Flow efficiency focuses on optimizing throughput times**
  - “Lean” way of running the supply chain, “efficient oceans”
  - Lower utilization of production lines and workforce
  - Short throughput times & lead times
  - Low WIP & finished goods inventories
  - Small batches
  - Focus on throughput times

# Flow can be optimized by focusing on the bottlenecks of the entire chain

## Theory of Costraints



# But remember, the foundation of continuous improvement is built upon “soft” factors



Define objectives, process and capability development plan for kaizen

- **Define and align objectives with strategy**
  - Cost: low cost operations
  - Quality: top quality, consistent quality
  - Time: delivery speed, on-time delivery, development speed
  - Flexibility: customization, variety, volume flexibility
- **Define the process with which continuous improvement initiative will be tackled**
  - E.g. Define issue & goal, engage team, conduct pre-work, hold kick-off, understand current state, define future state, share recommendations, implement changes, monitor performance, make adjustments and sustain performance
- **Develop capability development plan for enabling change**
  - E.g. Coaching, class-room trainings, certifications
  - E.g. Rewards and incentives for improvement initiatives
  - E.g. Leadership engagement, top management support essential

