

# Inventory Management

## Why Do We Need Inventory?

- Availability to sell
- Customer selection to view
- Minimum order quantities
- Time in transit
- Work In Progress:
  - Minimum batch sizes
  - Production throughput times
  - Little's Law



**Little's Law**

$$L = \lambda W$$

$L$  = Level of WIP  
 $\lambda$  = Throughput Rate  
 $W$  = Throughput Time

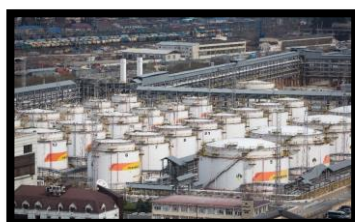


## Why Else Do We Hold Inventory?



**Uncertainty**

- **Protects against uncertainty**
  - **Raw Materials:** supply & demand uncertainty
  - **Finished Goods:** demand uncertainty, long replenishment lead times
  - **Work-in-Process:** process uncertainty (quality machine breakdown, etc.)



**Exploitation of Price**

- **Exploitation of price fluctuations**
  - Raw materials: Cocoa, Coffee, etc...



**Economies of Scale**

- **Economies of scale (EOS)**
  - Larger batches can be used to minimise setup / changeover costs.



**Smoothing or levelling production**

- **Smoothing or levelling of production**
  - Small variation in demand can be buffered through making and using FGI stock.