Capacity & Demand Variability

Ken Homa
Capacity & Demand Variability

• Demand - subject to seasonality and other variants - is rarely at a constant level

• If facilitated for peak demand, capacity is underutilized during non-peak times

• If facilitated for average demand (i.e. relatively constant across time periods), may not be able to meet peak demand

What to do?
Demand Variation

How to meet demand?
Option 1: Raise Capacity to Peak

Major benefit = peak demand is met
But, throughout most of the year, there is excess capacity (low capacity utilization)
Excess capacity = higher investment in P&E and higher costs such as under-absorption of O/H, start/stop inefficiencies
Option 2: Pre-build inventory

When capacity is available, produce more than is currently required to meet demand and store excess as inventory.
During periods of high (peak) demand, sell off the accumulated inventory
Option 2: Pre-build inventory

Benefits: demand is met, production is efficiently "level loaded"
Option 2: Pre-build inventory

But, carrying inventory = higher investment in working capital and higher costs such as storage, handling, & obsolescence
When capacity is available, produce more than is currently required to meet demand and store excess as inventory. In peak demand periods, sell off the accumulated inventory.
When Demand > Capacity

• Manufacturing business
  Pre-build inventory to satisfy expected demand (and to ‘level-load’ production)

• Service business
  …Supplement resource base
  …Prudently manage waiting lines

**Inventory**
The fundamental difference between service & manufacturing businesses