Production-Distribution Supply Chain Game (Beer Game)

IE 604/ TD 604: System Dynamics Modeling & Anlaysis

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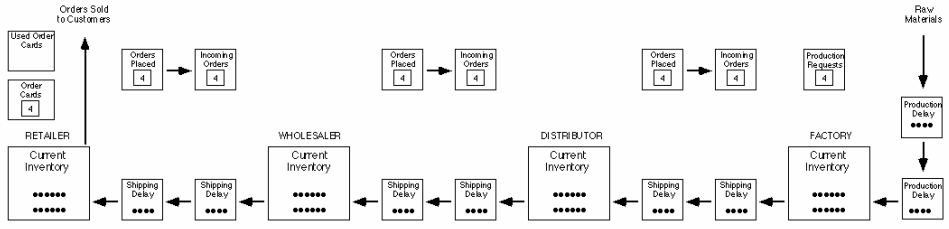
The Supply Chain



- 1 week delay for information processing
- 2 week lead time for moving goods

- **Play the computerized version**
  - **Aditya Sikka**

Rules

- Each move represents a week
- Competitive-cooperative game
  - You can work with a partner
  - You cannot talk with the rest of the team/ SC
- Objective
  - Run a minimum cost distribution system
  - Inventory cost = Rs. 1 / unit/ week
  - Backlog cost = Rs. 2 / unit/ week
  - Costs are cumulative
  - Team with lowest cumulative cost wins!

Warm-up

- Introduce yourself to the team
- Decide team name
- Write team name and your position on the 'Game Sheet'

Sequences of steps (repeat each week)

- **STEP 1**
  - Delivery from Upstream arrives & added to inventory
  - Order from Downstream player arrives
- **STEP 2**
  - Order-to-fill(t) = Incoming order(t) + Backlog(t-1)
  - Delivery to Downstream = MIN [Inventory(t), Order-to-fill(t)]
- **STEP 3**:
  - Inventory(t) = Inventory(t-1) + Delivery from Upstream - Delivery to Downstream
  - Backlog(t)= Backlog(t-1) + Order from downstream - Delivery to Downstream
- **STEP 4**:
  - Total Cost(t) = Total Cost(t-1) + Inventory cost + Backlog Cost
- **STEP 5**:
  - Decide on how much to order from the upstream player!
  - Enter this value on the input box available on the screen

Hints

- Keep pace with me and your team.
- Cannot look ahead on orders
- Feel free to create a record of past orders in the Game Sheet
- Remember
  - You place order & receive from upstream
  - It takes time for the order to reach supplier and the shipments to reach you
  - You receive order and ship downstream

Calculate Game Statistics

- Calculate your score
  - Total inventory cost
  - Total backlog cost
  - Calculate total cost
- Plot inventory + backlog
- Plot orders
- All position (except Retailer)
  - plot estimated end customer orders
- Retailer: Collect the sheets & calculate team score

Learning

- What was your perception of feedback?
- What was your perception of delay?
- What is the additional thing you could have done to improve performance?
- Do you think the performance of supply chain will be better if you had **more** data?
  - If so, what data is required?

Suggestions for Improvement