The Beer Game

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The Beer Game

- Our Objectives are:
  - to provide a valuable learning experience about supply chains
  - to have fun.
- The game is not designed with any specific industry in mind.
- Rather, it is designed to elicit a certain behaviour that is characteristic of most supply chains.
The Beer Game - Rules

- Every Week:
  - New shipments received from your supplier.
  - New order received from your customer.
  - Customer order is filled from inventory. Any balance goes into backlog.
  - Cost is:
    - $0.50 per case in ending inventory;
    - $1.00 per case in backlog
  - You place a new order with your supplier
The Beer Game - Rules

- Backlogs do not go away!!
- All orders must eventually be filled
- No communication with team-mates
- If you have played before...
- Lowest cumulative cost team is the winner.

What happened?

Blame
- the computer
- my supplier
- my customer
- the consumer
- myself
- the system
What happened to Consumer Demand?

The Beer Game - Observations

- One or more players cut orders in an attempt to reduce inventory
- Suppliers see a reduction in order size as a signal of declining demand and reduce their orders even more
- Meanwhile, retailers see a jump in consumer demand
- Retailers order extra in an attempt to fill the pipeline
The Beer Game - Observations

• Suppliers see higher orders as a signal of increasing demand just when their inventory is being reduced
• Backlogs develop and build!
• In the face of growing backlogs, players grow impatient and increase their orders - forgetting that all previous orders will eventually be filled
• Backlog situations eventually turn into excess inventory situations as previous over-orders are filled

An analysis of thousands of games shows that though not all players order the same amounts, they all overreact at approximately the same time.

*It always happens!!*
### Reacting to Stockouts

<table>
<thead>
<tr>
<th>Event</th>
<th>Analysis</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockouts</td>
<td>None</td>
<td>Increase my order</td>
</tr>
<tr>
<td>Stockouts</td>
<td>Supplier has not filled my past orders</td>
<td>Get a new supplier</td>
</tr>
<tr>
<td>Stockouts</td>
<td>Demand is erratic</td>
<td>Try to smooth out demand</td>
</tr>
<tr>
<td>Stockouts</td>
<td>My orders are too erratic</td>
<td>Dampen my decision rules</td>
</tr>
<tr>
<td>Stockouts</td>
<td>Delays in system cause these problems</td>
<td>Change the system. Work to shorten lags</td>
</tr>
</tbody>
</table>

### Which cost more?

- Information
- Inventory
- Capacity
Beer Game Lessons

• Inventory cost money, but may help increase service levels
• Lags cause problems and longer supply chains cause problems
• Need information systems to monitor each stage in the chain
• Also, need cooperation in the channel
• Are partnerships the answer???