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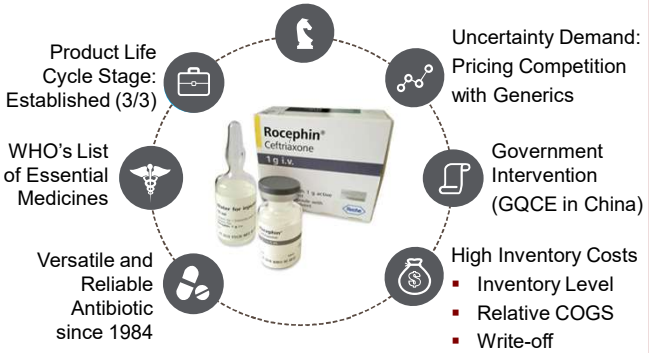
Idle Hands VS Inventory Overkill

BACK TO KIOSK MENU

MIT GLOBAL SCALE NETWORK
January 2020 Poster Session

Motivation / Background

Available in market for next 10 years



Key Question / Hypothesis

How can we battle **Demand Uncertainty i**n our supply chain through the use of **Safety Stock** and **Excess Capacity**?





Source: Laínez, J. M., Schaefer, E., & Reklaitis, G. V. (2012). Challenges and opportunities in enterprise-wide optimization in the pharmaceutical industry.

Methodology



Minimize Total Cost = Inventory Cost + Production Cost
By selecting Production Shift Pattern and Safety Stock Policy

Analyze with extreme scenarios to determine trade-off thresholds

Initial Results

INVENTORY SHELF LIFE CONSTRAINT



Forces the model to converge on a solution that is not entirely composed of safety stock

PRODUCTION RAMP-UP LEADTIME



Prevents the model to cover demand uncertainty entirely with capacity



- Solution would be a combination of safety stock and production capacity
- Determined by variables that are unique to the pharmaceutical industry

Expected Contribution

Practical Model

- Suggest an optimal strategy
- Bridge 2 decision-making processes that are not always easy to reconcile: capacity planning & inventory policy

Facilitate Communication

- Between different stakeholders in Roche's supply chain operation



Brett Elgersma & Amelia Dang at Roche's Kaiseraugst Plant