Team TRFC: A Full Stack Simulation for Sourcing Dilemmas

Tesla Case Competition

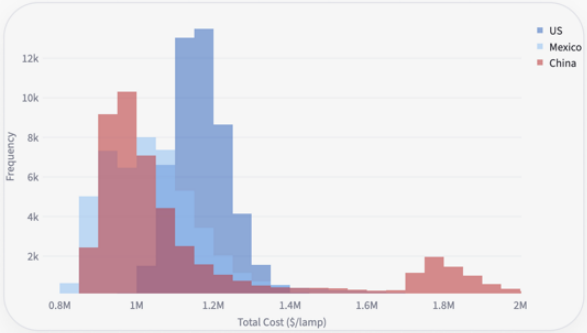
As a headlamp sourcing warehouse, what is the cost optimal sourcing strategy that ensures we never disrupt the the Gigafactory's production process?

Our Framework

Model Uncertainty → Simulate Outcomes → Optimize Sourcing

1. Model Uncertainty

2. Simulate Outcomes



3. Optimize Sourcing

Objective = Expectation [Cost] + Risk Aversion · Standard Deviation [Cost]

Using Monte Carlo Simulation, we:

- Split production across multiple sites to minimize average cost
- Punish sites with high production variability

Optimal Procurement Strategy

- Diversify across all suppliers to optimize cost and reduce risk
- Order 1969 extra units to cover supply chain disruption
- Procure 94% from Mexico, 5% from US, 1.3% from China (given risk and cost are equally important)

Our Dashboard

Anticipated Order Site

20000

Risk Aversion

1.00

Run

Cost / Headlamp

$101.05

Recommended Orders

21,969

Sourcing Strategy