Optimize Use of Raw Materials

**Challenge**
- Synthetic crude oil is a key part of product line
- Hard to find right balance of how much to "upgrade" oil:
  - Can drastically affect process and total cost
- Precision requirements increase costs:
  - Increased use of raw goods
  - More waste – costly disposal
  - Inefficient transformation process

**Solution**
- Modeled the entire lifecycle of the oil to:
  - Predict product quality based on configurations
  - Prescriptive recommendations to process control variables
- Process running continuously to refine optimization
  - Optimize different levels of oil “upgrades”
  - Real-time model response
- Easily explain model to domain experts

**Impact**
- Increased profits by optimizing raw materials
- Production costs: $21.05 per barrel
- Nearly 400k barrels per day produced
  - 24/7 production, 365 days
- Projected at $3.2M increase in profits per year
  - Based on first 6 months

**Problem type:** Prescriptive optimization

**Universal relevance:** How much do you leave on the cutting room floor? AI can help ensure you’re not leaving too much or too little. Either can be costly.