

Optimization and Distribution of Raw Materials for a Prominent Metal Refining Company

Overview

An internationally prominent metals refining company required a solution to help offset disruptive cyclical economic conditions and maximize the returns from operations across several distributed plants.

Problem Description

Due to cyclical economic variations that affected operating costs, the client, a global metals refining company, was facing issues in planning and procuring raw materials efficiently. Without a centralized and coordinated solution, it was difficult to manage inventories across three distributed plant locations and keep operating costs down. Further, unpredictability in the inventory supply

affected the overall process stability of the company, resulting in reduced profitability.

Solution

Working with MNI Partners, a specialized consulting firm, Nagarro built a web-based decision support system that was able to compute the best possible distribution of raw material between the plants during a specified planning horizon, by combining several separate data sources. The system consisted of several interconnected models, each designed to solve a different problem. All models were simultaneously solved using an optimization algorithm, which encapsulated the problem logic and took into consideration several hundred applicable weighted constraints. The algorithm used a third party non-linear solver to do the numerical solutions.

Benefits

- Saved millions in working capital due to reduction of raw material inventory by tens of thousands of tons
- Reduced overall distribution budget by a few percentage points
- Offset impact of regional transportation cost spikes through optimized transportation planning
- Reduced costs through increased process stability