Case Study

DESWIK
BOLT

Value chain optimization software to increase profit, reduce costs and maximize efficiency.

Increased profits

Millions saved in transportation costs annually

Optimization

Generate optimal transportation plans

Visibility

Extended planning horizons

Optimal vessel scheduling to lower costs, prevent bottlenecks and de-risk the aluminum supply chain

THE CUSTOMER

The customer produces multiple grades of aluminum billet, slab, and T-bar for domestic and global markets from their manufacturing facilities in Australia and New Zealand.

THE CHALLENGE

Each day, the customer manually plans and coordinates a vast transportation network to move different product grades from multiple mines to a range of domestic and international customers. Synchronizing the schedule for this network of transportation providers (trucking, rail, and vessels) was highly complex due to constraints related to contractual obligations, capacity availability and varying rail and vessel schedules.

The complexity of coordinating schedules across multiple forms of transportation often results in costly delays. These delays stem from the following:

- **Scheduling Conflicts:** missing a vessel at port due to a trucking delay can result in product waiting weeks for the next available vessel, resulting in storage fees.
- **Capacity Constraints:** if production and logistics are poorly coordinated, a plant's stockyard runs out of capacity, which results in production being halted.
- **Varying rates:** each vessel and trucking operator has variable rates and contractual requirements, making it challenging to develop the best low-cost transport plan.
- **Contractual Obligations:** the varying contractual requirements for each transportation provider must be considered when scheduling product.

THE SOLUTION

BOLT, Deswik's supply chain optimization software, was deployed to plan material flow through scheduling vehicles to transport the product. Though BOLT typically focuses on the flow of materials, the team at Deswik demonstrated its breadth of modeling capabilities extended into the vehicle availability and scheduling space. The production and logistics scheduling complexity were captured from various sources, including cleansed and revised data from multiple spreadsheets, vessel schedules, pricing structures, provider capacities, rough production schedules, and customer contracts.

By the end of the project, the client was producing optima schedules eight weeks into the future at the click of a button. Planning became centralized, meaning plants could share their capacity to fulfill orders, and operators and carriers no longer needed to be contacted individually. BOLT reduced manual entry by allowing outputs to be loaded directly into their existing system. The client can now operate an autonomous, closed system to create optimal plans. Capital is saved through lowered transport costs and the mitigation of production loss issues.

THE BENEFITS

- **Competitive pricing:** Longer planning horizons provide more opportunities to find and negotiate with carriers to secure the lowest prices
- **Constraint-based planning:** BOLT considers all the operational constraints when producing optimal plans
- **Maximized capacity:** Centrally managed planning allows for a holistic use of storage capacity across the entire supply chain.

DECISION SUPPORT

- Which truck providers should be engaged for specific deliveries?
- When should the product read the port, and how much should be loaded onto each vessel?
- Which vessels should be used to deliver the product to customers overseas?
- What production timing and quantities will match demand and stockpiling requirements?
- When one facility is struggling to fulfill an order, is there another plant with similar stock or available capacity?