Case Study

Haulage Provider

DESWIK
RACE Planner

Synchronize train, terminal and vessel operations with industrial mathematics.

## Speed

Generate optimized plans within minutes.

## Optimization

Ensure rolling stock is used optimally.

## Visibility

Exploiting hidden capacity to improve throughput.

# Identifying latent capacity and other efficiencies through optimal bulk rail logistics planning.

### THE CUSTOMER

The customer is a major bulk logistics rail operator serving the New South Wales and Victorian agricultural supply chains.

### THE CHALLENGE

The customer needed a more efficient way to schedule their trains across its network, from loading trains at grain silos and then transporting bulk amounts of grain over hundreds of miles of rail network to unloading at domestic mills and terminals for export.

This rail value chain is large, complex and involves many stakeholders. The customer's prime constraint is developing a schedule modeling constraints on network access caused by high volumes of rail traffic on regional, coastal, and metro lines owned and operated by multiple entities.

In addition to the limited track availability, many load and unload sites only allow access to rail services within narrow time windows. Rail plans must align to schedules provided by domestic and export terminals and servicing load points during daylight hours for safety purposes. Accounting for the availability of all stakeholders within a value chain while also producing an optimal rail plan presents a challenging problem to solve.

Before engaging Deswik, the customer's manual, spreadsheet based planning system was time-consuming and inflexible. In a dynamic environment where network availability is regularly updated, re-planning often continues until the plan is released. Rudimentary validation methods would hinder the ability of planners to reschedule or evaluate other options.

**THE SOLUTION**

As an existing RACE customer for other commodities, the customer was interested to see how the tool would impact their grain operations. The first step was to model their complex rail network, producers, rolling stock, and associated constraints within RACE. By capturing this data in the tool, planners are no longer responsible for manipulating vast amounts of information. RACE stores this data, using it to produce highly optimized plans in a fraction of the time it took previously, in the manual spreadsheet method. RACE introduces consistency and optimization into the planning process. Whereas previously, the quality of a plan was subject to the individual planner's experience and rules of thumb, without optimization for time, cost, asset utilization, and any number of business goals.

**THE BENEFITS**

- **Objectivity:** Replace subjectivity and human decision-making inherent in manual processes with data-driven and objective mathematically optimized planning.
- **Precision:** Mathematically optimized schedules eliminate the need for self-imposed buffers previously required for plan execution.
- **Latent capacity identification:** Optimal plans maximize performance with minimum resources.
- **Ad hoc pathing:** Paths through the network can be found for new and additional unplanned shipments, or ad-hoc customer requests.
- **Streamlined planning process:** Plans produced in minutes rather than days allow personnel to focus on more strategic opportunities.
- **Contract mix optimization:** Within the model, contracts are evaluated for yield and impact on asset utilization.


RACE's Train Diagram allows users to visualize the entire supply chain and to assess the impacts of constraints in different scenarios.

**DECISION SUPPORT**

- Can I rail this producer's demand?
- Can I rail higher volumes from this customer?
- What is my actual capacity?
- When can I access this loading site to get the product and take it to port?
- How can I minimize waiting to avoid wasting valuable crew time?
- Is it more efficient to turn up early and wait at a load site or to delay arrival?
- How many rolling assets are required to fulfil this demand?
- How many train cycles should I run?
- How can costs like demurrage be reduced or eliminated?

DESWIK
## RACE Planner

Learn how to maximize operational throughput and asset utilization today.

SCHEDULE A DEMO