

Case Study - Rail Network Planning and Scheduling System

A global mining company, with one of the world's largest private rail networks, is currently working to toward significantly expanding its production capacity. With the expansion of the company's business more locomotives and rolling stock will be used on the rail network. The network will become more congested and any track or signals maintenance work or new construction work will become more disruptive than before.

To provide an effective planning and scheduling capability aimed at minimising the disruption on the rail network, the company decided to purchase and implement a new Network Planning and Scheduling System. Multiple commercial software packages were considered however SATEVA was selected to develop a bespoke system, tailored to the company's requirements, following an extensive tender process.

The goal of the new system was to maintain a balance between the maintenance of the rail network and production. The new solution impacted multiple areas of the business including rail, integrated planning, and other business units. The new solution also needed to integrate with numerous computer systems including SAP, a new electronic train graph system, and 12 other systems.

A number of benefits were realised from the new system including:

- Improved planning capability,
- Reduction in man power required for the management of track possessions,
- Improved safety due to increased visibility of work on track, and
- Increases in tonnages of railed ore.

The system allows users to plan track possessions which are required to schedule maintenance and construction work, and then highlights further opportunities for possessions which will incur zero or minimal impact on rail capacity.

The Network Planning and Scheduling System was developed using Microsoft C#.Net, WPF, SQL Server Reporting Services, and Oracle. During the project a common rail model, a track schematic, and a stylised schematic (i.e. single page view of the rail network) were developed. These were all developed as reusable components that could be integrated and form parts of other rail systems with the client's application software portfolio.

SATEVA is a technology consulting firm based in Perth, Western Australia. SATEVA specialises in providing technology consulting services to the mining, metals, and rail industries. Our company provides application development services in areas such as exploration, mine geology, grade control, planning, rail systems, ore tracking, inventory management, reconciliation, and data management.