

Case Study: Adapt **FMS**

We created a digital twin of a mine's fuel operations
and identified cost savings of over \$5M USD

Problem

Following a decision to double on-site fuel storage capacity to improve survival time, a major mining operator needed to determine the best logistics model to support the increase. The operator was also aware of significant capital and operational expenses associated with acquiring new service trucks to distribute the additional fuel.

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Solution

VERIDAPT created a digital twin of fuel supplier operations that would allow the client to replace its direct-to-tank (in-pit) delivery method with a hub-and-spoke model, where fuel would be delivered to a single drop point at a new tank farm (the hub). A comprehensive end-to-end fuel consumption model was developed using historical data captured and aggregated by **VERIDAPT**'s fuel management platform, Adapt**FMS**. These inputs were used to develop a model of the site's fuel supply chain and consumption, which could simulate a range of usage and logistics models and run simulations across a range of timelines from days to weeks or years, as required. Twenty-seven unique fuel delivery and distribution models were simulated to identify the optimal balance between cost and storage capacity for times of high demand. These simulations indicated that by better allocating under-utilised assets and making some operational changes, the operator could purchase fewer new service trucks and still maintain an acceptable fuel inventory survival time and maintain supply chain resilience.

Benefit

By optimising number and capacity of the new service truck fleet and simplifying the logistics, **VERIDAPT**'s comprehensive and predictive modelling clearly demonstrated the operator would lower both capex and opex on fuel delivery and distribution. **VERIDAPT** presented the operator with two fuel management options ahead of a final agreement with its fuel supplier. The total cost savings estimates ranged between \$5M and \$6M USD over 5 years. The model also offered a marked improvement in on-site safety and logistics that would be achieved through minimising the number of vehicle interactions in the active mining areas.