

12.5% COST REDUCTION WITH NEW HME FLEET STRATEGY

While maintaining consistent performance over 10 years

Developing an effective fleet strategy is a complex task for mining companies. Asset performance, maintenance tactics, labour factors, business risks, life of mine, OEM pricing and capital availability all influence fleet replacement decisions.

For internal decision-makers, this can lead to:

Uncertainty over how to accurately evaluate the options available - while understanding the business impact of those options.



Defaulting to **less effective methods** - like industry benchmarks, OEM defaults, and replacing before major maintenance spend.



Higher business expenses over an asset's life, because these methods don't consider financial parameters - like time value of money.

The company operates a large iron ore mine, rail and port in the Pilbara region, and was uncertain whether replacing or extending the life of its heavy mobile mining assets represented the best choice for its business goals.

COSOL specialises in strategic asset planning and decision support for mining companies.

CHALLENGE

With 10-years remaining until the mine's end of life, our client needed to make critical strategic decisions on their fleet, including replacement and maintenance. The COSOL team knew that they had to consider the site's unique financial, maintenance, performance and risk parameters, including:

Performance issues of an ageing fleet - **reducing asset availability.**



Industry-wide labour shortage - **hampering maintenance capabilities**



Acquisition lead times of up to two years - **affecting timelines and turnaround.**



Closure of the mine within 10 years - **necessitating careful capital investment.**

Considering these issues, COSOL approached the client's heavy mobile equipment (HME) fleet strategy with three success criteria in mind

1. **Improve asset availability and reliability**
2. **Reduce capital and maintenance expenditure**
3. **Minimise on-site maintenance labour demand**



SOLUTION

Working with the client's team, COSOL undertook a comprehensive analysis and decision process to ensure that the recommended fleet strategy was backed by fact-based insights. This involved:

01

Gaining a clear **understanding** of asset demand over life of mine

02

Aligned **decisions** on the best solutions - considering the unique business context

03

Coordinated **actions** to deliver results quickly

01 Understand

- Define assets for assessment
- Analyse mine plane demand
- Map maintenance strategy

Most fleet replacement analyses across the mining industry use one of three techniques:

- Industry benchmarking
- Equipment manufacturer (OEM) replacement age recommendations
- Lowest maintenance cost points

However, these methods alone don't consider critical factors specific to a mine and its assets - **leaving significant value unrealised**. COSOL would build upon these basic principles to formulate a strategy most suited to the client's situation.

To determine how to achieve these best-for-business outcomes...

COSOL examined relevant high-impact **quantitative and qualitative data** - including:

Mine plan demand requirements

Whole-of-life costs and labour requirements

Depreciation, inflation and cash rate

Capital availability

Asset suitability for the client and project

Unique business and site characteristics

Technical risk

Fleet automation capabilities and integrations

Carbon emissions and ESG implications

02 Decide

- Identify spend and timings
- Evaluate scenarios
- Model asset whole-of-life
- Provide recommendations

Over 12 months, COSOL developed and implemented a new strategy to maximise the value of the client's fleet - refining the company's fleet lives to match their business requirements and life of mine.

OUTCOMES

- ✓ New fleet strategy with improved replacement points for each asset – including order points that consider acquisition lead times:
 - Hydraulic excavators – replaced at 54,000 hours
 - Caterpillar 793 and Hitachi EH5000 – run to the mine's end of life, supported by new and individualised maintenance strategies that mitigate late life failure modes (like cracking and repair downtime)
 - Bulldozers, loaders, drills and graders – aligned to the most economical replacement points, considering residual value at the mine's end of life.
- ✓ Verified **business value case** shown in Net Present Value.
- ✓ Optimised **capital spend profile**, outlining impacts that spend decision scenarios will have on whole-of-life business costs, maintenance and labour requirements.
- ✓ **Toolset for client's team** to analyse subsequent fleet strategy scenarios and capital spend options.
- ✓ **Training for client's engineering team** in fleet strategy decision-making, data analysis, toolsets and process improvement.

For a total investment of less than AUD 1 million, COSOL enabled the client make confident and informed decisions about its assets. Optimal replacement ages and maintenance strategies have locked in substantial cost savings over the 2023-2032 period.

AUD 142.3M

Net Present Value to client; a reduction of 12.5% in total costs (NPC)

Up to 4% Improvement

in asset availability, with no decline in performance

8.2% Reduction

in maintenance labour demand

Additional value from

Increased Production

through identified asset configuration options



COSOL: When Reliability Matters

COSOL is built on one belief: in asset-intensive industries, reliability is everything. We are a trusted, Intelligent Asset Operations partner - known for our deep expertise, dependable delivery, and ability to keep critical assets performing at their best.