

CASE STUDY

World's first highly automated Short Interval Control system for hard-rock underground mines

ORB

Type
Block Caving

Module
Real-time

The Customer

Our client is one of the world's largest gold mining companies that owns and operates mines in Australia and internationally, with gold reserves representing more than 25 years of production.

The Problem

Shift planners were looking for a way to dispatch LHDs according to an optimised draw strategy that would enable them to respond to changes in real time. Planners needed to meet long-term objectives and compliance goals, while factoring in complex operational and geotechnical constraints to maximise productivity of block cave assets.

The Solution

Polymathian designed and developed ORB, the world's first highly automated Short Interval Control (SIC) system for hard-rock underground mines, resulting in:

- Maximum productivity with guaranteed optimality using Industrial Mathematics
- Successful transition to a continuous draw strategy
- Centralised dashboard display providing accurate visual representation of live cave state
- Increased accuracy, completeness and value of historical operational data
- Autonomous real-time LHD dispatch decisions sent direct to operators via on-board tablets with 2-way communication capability

The Challenges

Making the best plan from over one billion potential draw strategies

Delivering a draw strategy that adheres to numerous caving and operational constraints

Aggregating real-time data from multiple sources

The Value



20%

Improvement to mine productivity



17%

Improvement to draw compliance



Digital Twin

Digital representation of active cave state

