

**Optimise gold recovery through
mill feed blending, processing
and stock inventories**

BlendOpt



Paradyn

**Integrated
Value-chain
Optimisation**



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Simultaneous optimisation of process feed control strategies, blending and stock inventories

To remain competitive, respond quickly to changes in market conditions, and maximise revenue outcomes it is important to consider a holistic strategy for value creation as well as improve the coordination of operations planning across the mining value-chain. The BlendOpt software application collaborates with you by utilising your expert knowledge and decision making with mathematical optimisation in order to find ideal plans and schedules for your gold operation.

Plans for mining, grinding, and processing, are difficult to align with recovery and NPV objectives if each planning activity is developed separately instead of holistically. In practice, value-chain optimisation is only achievable through integrated planning. By integrated planning, we mean coordinated planning of decisions between mining, processing, inventory, logistics, maintenance, and sales. While the importance of integrated planning is recognised, its execution is difficult without the right tools to support this process.

BlendOpt is the first mathematical optimisation software tool that supports gold mine to mill integrated planning. Starting with a mine schedule, the BlendOpt Collaborative Mathematical Optimiser (CMO) discovers strategies for how ore should be blended, milled and processed, maximising recovery and throughput while managing costs. Mathematically optimised plans are created using algorithms that test thousands of possible plans in search of the highest profit from the data provided.

Previous mine value-chain optimisation software has historically been unable to accurately model the problem and did not contain algorithmic techniques that could solve the problem in a timely fashion or address the multitude of mining value-chain constraints. In addition, any results generated were difficult to analyse thereby limiting what insights could be gained to inform practical improvements to business strategy, or tactical and operational decision making.

BlendOpt for gold mining and processing

The BlendOpt solution has been engineered to manage the complexity of the Gold mine to mill value-chain and can support decision making in the following areas :-

- Highly flexible recovery, throughput, and cost model calculations to optimise profits and that take into consideration properties including head grade, arsenic, abrasion, hardness, sulphur and other properties.
- Scenario testing to quantify benefits and risks associated with hypothetical changes to the operation.
- Planning that directly factors in uncertainty using either predictive or historical data on the variability of material (physical and chemical) properties.
- Improvements to the stability of intra-day feed blends with benefits to concentrate grade and total recovery.
- Optimisation under small inventory capacity conditions.

The BlendOpt Solution

Paradyn's BlendOpt value-chain platform powered by Collaborative Mathematical Optimisation (CMO) can help you:

- Satisfy constraints in your value-chain
- Optimise for any objective including tonnage, revenue, and cost
- Optimise and integrate operational, tactical and strategic planning from minutes to years
- Improve collaboration and synchronisation between planning and operations
- Publish reports to relevant stakeholders
- Reconcile forecast with actuals
- Optimise reserving, processing, blending and logistical decisions
- Product portfolio optimisation
- 'What-If' scenario analysis



Read our articles to learn about Paradyn's innovative value-chain optimisation technology and how it can help your operation.