SOT
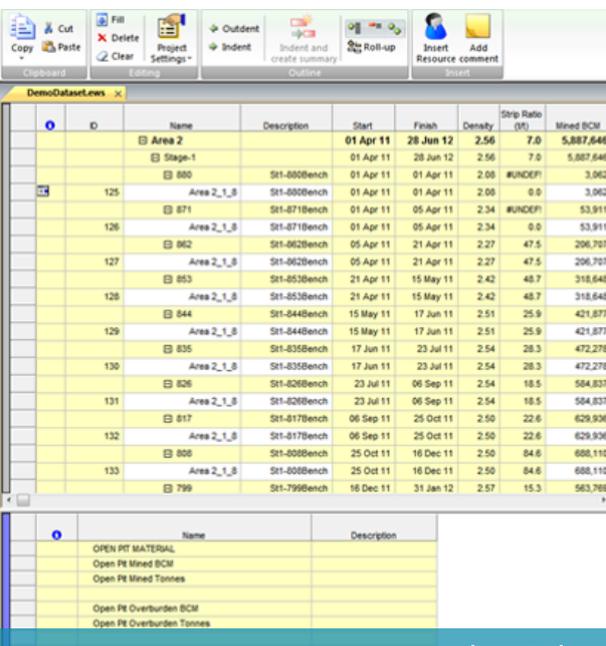## Schedule Optimisation Tool

OVERVIEW

Did you know that for a given design, changes in the mine schedule can impact the net present value (NPV) of the project by over 25%?

SOT addresses this opportunity by applying custom heuristics and sophisticated genetic algorithms that assess many scheduling options, and systematically learns which strategies deliver the greatest value. It is a stand-alone software that integrates with EPS by receiving an EPS file as an input and also having the ability to output an EPS file once the schedule has been optimised.

As typical mine activity scheduling is time consuming, mine planners usually have limited time to test different scenarios and conduct trade-off studies. However, with the SOT module, once a mine design is discretized into activities to be scheduled and those activities are logically sequenced, SOT will take this information and produce an optimised schedule. All of this is also tailored to specific user inputs such as production constraints, targets and mining resources, providing you with a schedule that is both value optimised and aligned to your individual processes.

WHO USES SOT?

- **Mine Planners**

HOW SOT WORKS

SOT works with the input of an underground mine design, consisting of a set of development and stoping activities. On import, each mining activity has properties such as duration, length, weight, mineral grades, activity types and mine area. SOT then uses these properties in order to set up various scenarios to be evaluated which typically consists of operational resources and their capacities, as well as the financial model including discount rate, projected mineral prices, operating costs and capital costs. SOT uses custom heuristics and an evolutionary algorithm to optimise the NPV.

There are typically a number of schedules generated which satisfy the conditions for one scenario. Mine planners generally take one solution from the available options at only face value, however SOT allows you to produce many schedules which were refined and improved at every step of the optimisation process, providing you not only with a good schedule, but one which is optimised to deliver the highest possible NPV.

Test & Compare Scenarios

SOT is designed for scenario planning and comparisons. The user can define different setup options to easily test and compare all scenarios, which then easily identifies bottlenecks (i.e. establishing the best hoisting capacity, development rate, equipment capacity and equipment quantity).

Machine Learning

SOT produces schedules in sequential steps and automatically 'learns' at every iteration in order to continually generate maximised outputs with the highest NPVs. First, an initial set of schedules are produced using specific SOT custom heuristics. Then, SOT will start optimising the schedule by 'crossing' these initial schedules. The highest value schedules produced will be kept, whilst the lowest value ones will be discarded. This 'crossing' of schedules process will be repeated until the value ceases to increase.

Learning Trace

BOOK A DEMO

To book a free demo of SOT, contact your local Datamine office.
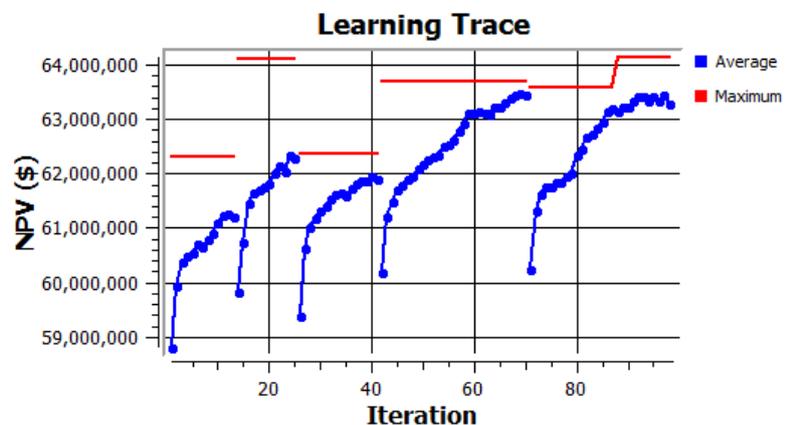
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