**An options study for your 12-week plan? Now you can!**

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**ABSTRACT**

Scenario planning is typically associated with long-term strategic planning, however recent technology advancements have made it possible to quickly and easily apply these methods to shorter-term planning. This paper explores how innovative scenario analysis addresses medium-term scheduling challenges, highlighting significant improvements in operational efficiency and short-term trade-off decisions.

The case study focuses on an underground mining operation facing numerous medium-term planning challenges; including depletion of multiple remnant mining areas, large capital development projects, increasing resources with varying grades and ground conditions. These challenges require balancing with operational considerations, such as drill, blast and waste fill inventories, haulage requirements, and spatial compliance to plan. These issues often resulted in high variability of the mining physicals against plans at all horizons.

Innovative scenario planning methods were implemented to provide a flexible and responsive planning solution, moving beyond the limitations of Excel and task-based scheduling. In particular, real-time scenario analysis capabilities enabled the China-based operation to evaluate various medium-term scenarios quickly and effectively.

Rapidly comparing scenarios identifies the best options for resource allocation and equipment usage, addressing challenges such as drill and blasted stocks, waste fill inventories, and variable ore inventories. Equipment-based scheduling enables precise modelling of equipment maintenance and availability, ensuring that schedules are comprehensive and executable, with all interactions, constraints and delays considered.

The technology also enhanced the engineering workflow, providing tools to manage and adapt to dynamic conditions. The ability to quickly generate and evaluate multiple scenarios supports better decision making on the ground, allowing the operation team to respond to unforeseen events.

The findings demonstrate that the operation had quantitative measurable improvements in compliance to plan and in key mining physicals targets. Further, there is substantive anecdotal evidence of improved insight and options offered to key decision makers. Finally, it was uncovered there is an opportunity to apply this approach to the complex world of short-term mine scheduling unlocking further operational optimisation.