



## Smart Solutions

# Case study:

## Optimizing blast fragmentation with smart, connected drill

Application: *hard rock*

Location: *United States*

Products featured: *P&H blasthole drills*

## Challenge: Reduce downtime in mineral processing plants

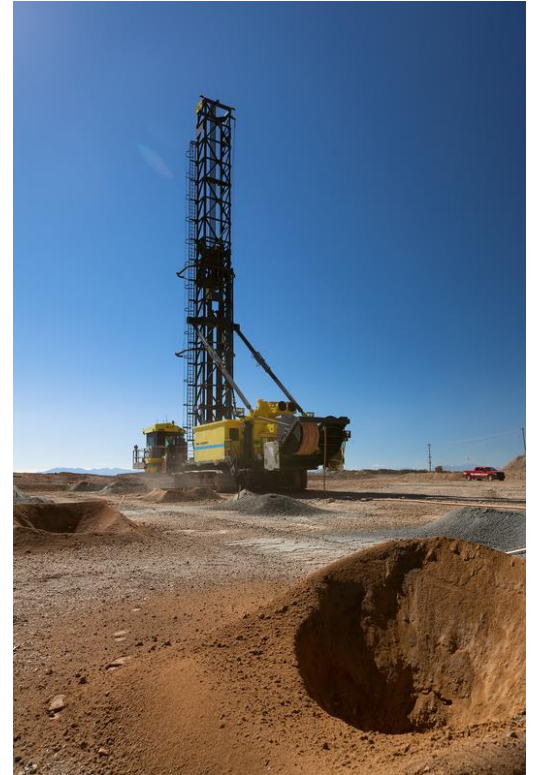
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Non-uniform fragmentation presents significant risks to mineral processing facilities

In order to reduce downtime, we were asked to find ways to **use our drills and associated loading equipment as smart sensors and provide real-time feedback** to better guide the blast design.

*Contributing factors:*

- Operations frequently interrupted to break large rocks or de-scale build-up of fines in crushers
- Uniform blasting designs on non-homogeneous rock strata can result in a broad distribution of fragmentation
- Survey data and other heuristics do not provide a complete picture prior to drilling



## Engagement process: Collaborating through partnership

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Challenge requires a collaborative solution, with expectations for each stakeholder:

- **Mine Site:** Responsible for survey data, mine plan, desired process fragmentation
- **Komatsu:** Provide smart, connected drill, strata recognition analytics and loading equipment
- **Blasting contractor:** Execute on optimized data driven blast plan

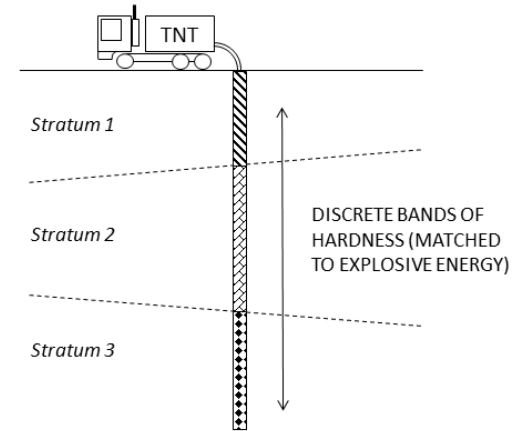
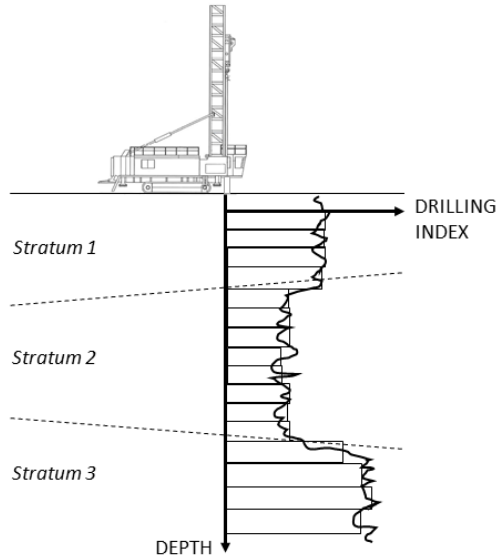


# Solution: Provide online strata classification analytics

Take advantage of real-time data acquisition and processing to **update mine plan in real-time**

**Provide immediate rock strength estimates** of strata layers during the drilling process for hole charging/loading design

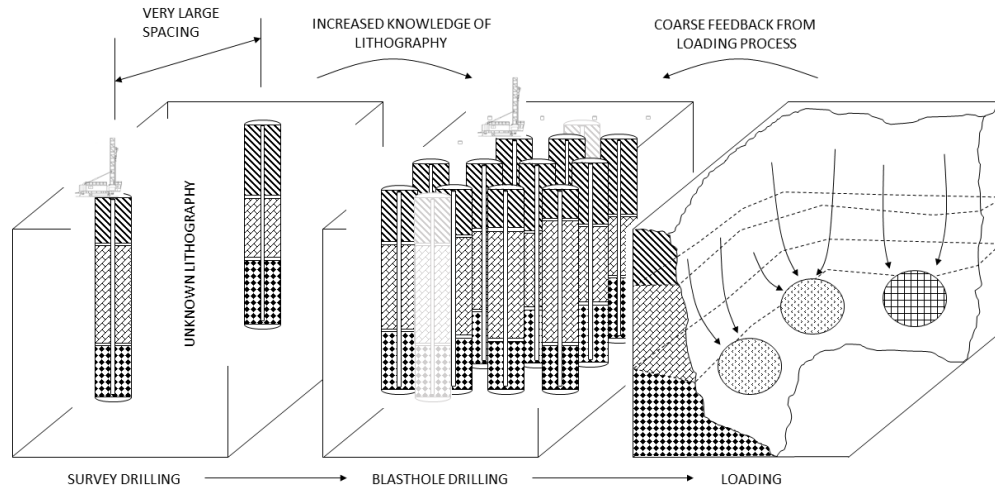
Feedback of fragmentation performance from loading equipment **improves estimates**



## Results:

Online rock strata classification will provide a **step-change** in the control of fragmentation and de-risking for continuous mineral processing operations.

It could also help reduce blasting costs through **tailored blasting**.



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