Master of all you survey

Large open pit mines come with unique challenges with regard to slope stability monitoring, slope strengthening, mine planning and even dealing with obstructions, reports Paul Moore

The PT Redpath Indonesia Kali Kabur river rock project was completed successfully in May 2014 with no accidents or incidents

Hexagon unites technologies

Productive mining companies know technology drives their future. Faced with rising energy costs, scarcer high grade ores, declining commodity prices, and tighter profit margins, mines must quickly adapt to survive. Enter **Hexagon Mining**, arguably the first company to unite the world's leading software innovators and create an unprecedented spread of technologies within the mining vertical.

Launched this year by global information technology giant, Hexagon AB, Hexagon Mining is unique among the industry's software players. The group states: "Hexagon Mining is the only company to solve surface and underground challenges by integrating design, planning, and operations technologies for safer, more productive mines. Combining the innovative technologies of **Devex Mining**, **Leica Geosystems Mining**, **MineSight** and **SAFEmine**, Hexagon Mining seamlessly links mine planning, design, fleet and production management, optimisation, fatigue monitoring, and collision avoidance software for a comprehensive flow of data across all operations."

"We strongly believe the industry needs a supplier with a 360-degree vision, connecting the best products, capabilities and solutions," says Hexagon Mining President, Guilherme Bastos. "No other vendor has ever assembled such a large spread of technologies within the mining vertical. Hexagon Mining wants to reshape traditional ways of thinking about the industry, and offer a smarter way to mine."

While that may start with Hexagon Mining's existing products, the company told ***IM*** that exciting new technology is also in the pipeline. The fleet management and optimisation expertise offered by Leica Geosystems Mining, for instance, presents immediate relief for mines facing tough times with rising capital expenditure and operating costs. Hexagon Mining believes fleet management represents a huge opportunity to minimise energy consumption, reduce carbon footprints, and save money.

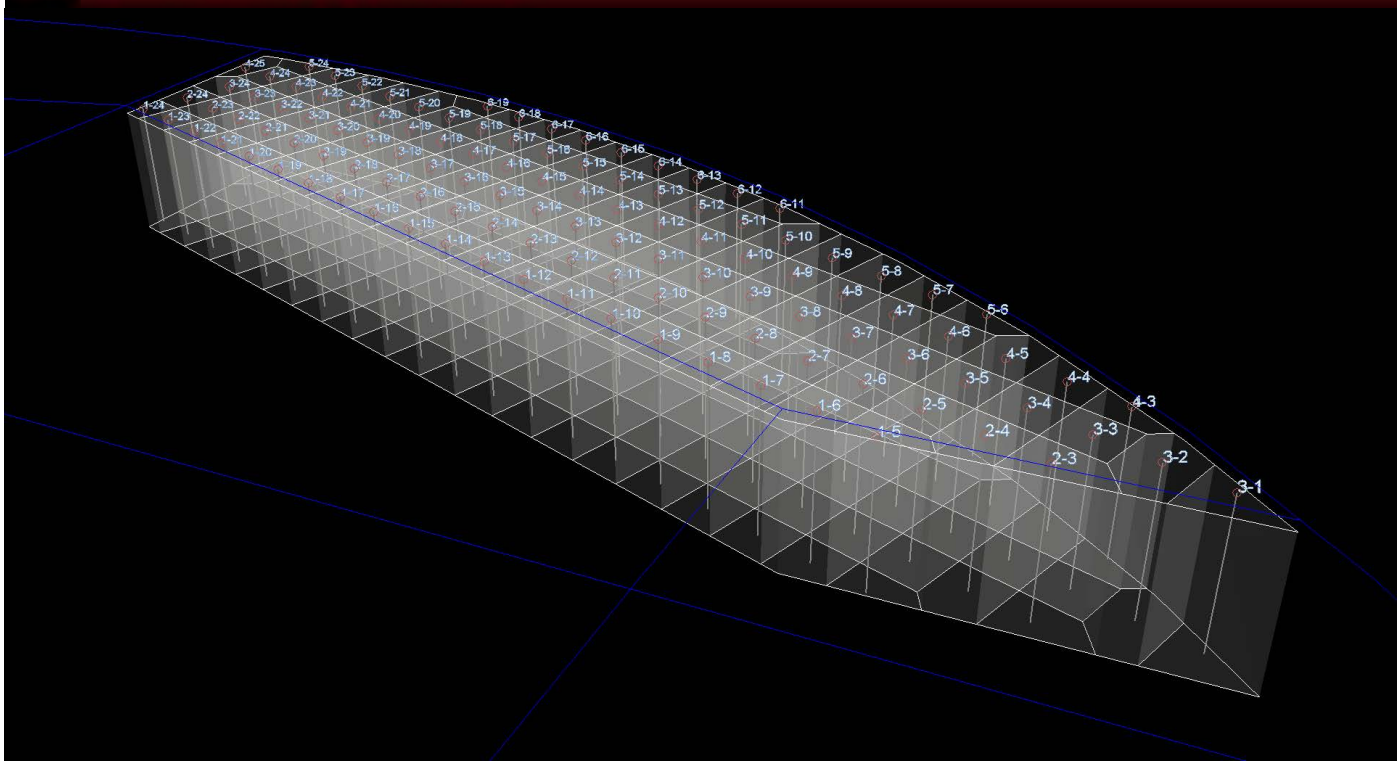
MineSight's activity-based planning product, Atlas, lets the mine planner define an operational plan down to the lowest level of detail needed. Leica's fleet management solution optimises the real-time scheduling and dispatch of mobile mining equipment. With a fleet management solution in place, dispatchers possess all the information they need to ensure daily operations are efficient and to plan.

Hexagon comments: "Supposing the planning product could seamlessly connect to the fleet management solution, effortlessly defining plans and setting operational goals. What if operational changes fed directly back to the planning system to update the plan for the next iteration? The newly united partners are already working on developing this synergistic product. Likewise, operations can be monitored in real time via the fleet management solution scrutinising a mine's every move. How fast is a shovel loading? Is the operator performing well? Is weather affecting travel times? Are blending arrangements or targets changing? With the answers to these questions, mines can quickly make decisions on critical equipment needs. By adjusting and making the most of their assets, a company can lower its operating costs."

Hexagon Mining says it will focus on business intelligence and business analytics, (BI/BA) identifying lost time that's non-productive: breaks, crew stand-down times, lunches, equipment breakdowns. By analysing such information and feeding it back into MineSight's planning and operational programs, customers can plan and schedule around real information coming from their mine.

Hexagon Mining also plans to build a standard BI/BA product across all the products it supports. Web/mobile dashboards will display safety information, product KPIs, critical work stoppage events, production equipment statistics, and more. "There are dollars in these details," says Bastos. "We help our customers make the most of their data."

Guilherme Bastos, President of the new Hexagon Mining



Viewing volume of influence solids and polygons will be among the compelling display features in MineSight Blast, a precise and dependable approach to one of mining's most challenging tasks

The drill and blast cycle is also integral to Hexagon Mining's vision, says the group. "Drawing upon visualisation and automation software, together with MineSight's Axis product, the company will focus on tracking grade and rock fragmentation. This part of the mining cycle is too important to get wrong", says Bastos.

"Poor fragmentation has major upstream costs for crusher energy, refining ... the whole mining process. Get the crushing and grinding right the first time and you really save energy costs and decrease the hit on the local energy grid. So we're looking to close that loop via Leica's drill fleet management machine guidance, and MineSight's drill and blast modules. This is all about breaking down silos and creating a seamless platform through which data flows smoothly."

Essential to that integration and pervading all Hexagon Mining solutions is safety. "SAFEmine has set a global benchmark for solutions that prevent mining accidents. More than 18,000 mining vehicles in 45 mines worldwide are equipped with SAFEmine's Collision Avoidance Systems (CAS)." Now the Switzerland-based company has launched FatigueMonitor, which is integrated with CAS.

"CAS protects vehicle operators from collisions in the constrained mining environment," says Bastos. "SAFEmine's data shows that a lot of mining accidents happen due to fatigue. Fatigue Monitor smartly fuses CAS data with PerClos and body clock inputs that can detect early signs of fatigue and prevent this type of accident."

In addition to the CAS and fatigue monitoring solutions, SAFEmine's versatile safety package includes SafetyCentre and ShovelAssist. SafetyCentre is made for haul trucks, displaying all relevant safety information via cameras and radar, and other sensors, such as tire pressure. ShovelAssist is a solution to avoid damaging light vehicles and clean-up equipment around shovels.

Bastos concludes: "At Hexagon, we are not just imagining bridging the gap between short term planning and operations, or connecting fleet operations with mine planning, or making analytics and business intelligence holistic and universal; we are making these solutions a reality. Integration and automation across the entire mining chain is the goal. We have all the necessary ingredients to achieve that goal."

Hexagon Mining will exploit existing GIS and CAD technology within the greater Hexagon family. Technologies such as Smart H2O from Hexagon Solutions offer the potential to monitor tailings dams and water dams in critical areas. The new unified company is headquartered in Tucson, Arizona, with more than 30 offices across five continents:

- Belo Horizonte, Brazil-based Devex Mining delivers leading solutions for fleet and production optimisation, process automation, machine maintenance, business intelligence and analytics, and autonomous control.
- Co-headquartered in Brisbane, Australia and Tucson, Arizona, Leica Geosystems Mining delivers leading solutions for fleet and production optimization, high-precision machine guidance, machine maintenance, business intelligence and analytics, and autonomous control.
- Tucson, Arizona-based MineSight is a comprehensive modelling and mine planning platform, offering integrated solutions for exploration, modelling, design, scheduling and operation.
- Baar, Switzerland-based SAFEmine is the leader in collision avoidance and fatigue monitoring systems, delivering extensible solutions that save lives.