

South African mining company leverages AVEVA software to centralise operations, consolidate its value chain, and increase situational awareness among three individual mineshafts.

Black Rock Mine Operations

INDUSTRY

Mining, Minerals, & Metals

Goals

- To migrate a highly fragmented environment to a Central Control Room environment that facilitates collaboration across operations.
- To integrate various sources of information ranging from Automation to Asset Management systems to provide a holistic view of the entire value chain of the mine operation.

Challenges

- Three separate mine locations complicate cross-site collaboration.
- Integration between business systems such as MES and operational systems were unaligned and complex.

AVEVA Solution

- System Platform
- Operations Management Interface
- Historian

Results

- Nearly double-digit growth in productivity.
- The CCR environment has improved Black Rock Mine Operations data quality significantly, with some sources improving more than five-fold.
- The establishment of the CCR and supporting services was instrumental in the change process by improving in-shift reporting, from less than 50 percent to a sustained 90 percent.

Black Rock Mine Operations Centralises Mining Operations with AVEVA

Northern Cape, South Africa – Assmang Proprietary Limited is a joint venture mining company that operates in South Africa. In total, it excavates and produces 3.6 metric tons of iron and manganese ore per year across its three separate mineshafts.

The Khumani and Beeshoek Mines are located in the Northern Cape province and excavate primarily iron ore, while the Black Rock Mining complex (BRMO), situated 80 km northwest of the town of Kuruman in the Kalahari, focuses its efforts toward highly sought manganese ore.

As much as 90 percent of manganese consumption is accounted for by the steel industry. The ore is blended with steel to fortify its strength and durability, which is essential in the manufacturing of construction materials. Manganese is also used with aluminum alloys, helping to reduce corrosion in common items, such as beverage cans.

“The Black Rock Project was mainly aimed around two objectives. One was to replace and to upgrade the existing infrastructure, and the second phase was to install additional capacity for us to be able to expand our production from just about 3 million to 4.6 million tons in three years’ time.”

Pierre Bekker,
Senior General Manager,
Black Rock Mine Operations

Fixing a Fragmented Approach

Before partnering with AVEVA, each of Assmang Limited’s three shafts managed its own operations independently from one another. Its control philosophy was largely decentralised,

which worked adequately for monitoring and controlling each plant, but ultimately, the system had little regard for holistic business objectives.

Additionally, its process control environment consisted of legacy systems and infrastructure with multiple data sources, resulting in a complex integration process. To remain competitive, its system had to change.

“The road to modernisation and technologies that we’ve applied at Black Rock Mine Operations had a number of enablers, and one of them was the visualisation, the video wall and the OMI. A place that’s easily accessible and speaks one version of the truth.”

Jaco van Heerden,
C&I Project Engineer, African Rainbow Minerals

Creating a Central Control Room

Driven by a 10-meter video wall in a centrally controlled environment, Black Rock Mine Operations strides toward digital transformation provides both mine management and the operational team with an integrated and situationally aware dashboard.

The Central Control Room ultimately enables enhanced decision-making, affording operators the opportunity to address challenges proactively rather than reactively, as had been done in the past.



“What we ended up needing was a total view of our value chain, from the face through to our train loading. As a result of that, we needed everything to be brought under one umbrella that would allow us then to get the full view of all of our infrastructure, all our different plants and mining operations, to enable us to manage the entire process far more efficiently.”

Yogesh Ramjattan,
Business Improvement Manager,
Black Rock Mine Operations

The Power of AVEVA

Black Rock Mine Operations new system is powered by a suite of AVEVA solutions, including System Platform with Historian and OMI visualisation for the video wall.

With its current AVEVA solution in place, Black Rock Mine Operations has improved data quality significantly, with some sources improving more than five-fold. Establishing the Central Control Room was also instrumental in

Black Rock Mine Operations change process by improving in-shift reporting from less than 50 percent to a sustained 90 percent.

Additionally, Black Rock Mine Operations has seen a significant increase in uptime, improvement in safety, and nearly double-digit growth in overall productivity – but it appears to have only scratched the surface of its digital transformation.

As new challenges arise, Black Rock Mine Operations won't hesitate to address them with AVEVA. Because of the visualisation technology and the software its deployed thus far, Black Rock Mine Operations cost for expansion moving forward will be low and implementation will be hassle-free.

“At Black Rock Mine Operations, we're excited by what we have achieved up to now, and we're equally optimised about the future to deliver on our vision as a team to become the best underground mine in the world.”

Pierre Bekker,
Senior General Manager,
Black Rock Mine Operations



About AVEVA

AVEVA is a global leader in engineering and industrial software driving digital transformation across the entire asset and operational life cycle of capital-intensive industries. The company's engineering, planning and operations, asset performance, and monitoring and control solutions deliver proven results to over 16,000 customers across the globe. Its customers are supported by the largest industrial software ecosystem, including 4,200 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 4,400 employees at 80 locations in over 40 countries.

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