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Mining software used and sought in West Africa

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West Africa is a rapidly growing and emerging market for mining software providers as international mining companies begin to explore the region's mineral wealth and operate in the region, says mining software company Micromine Africa regional manager **Neil Quin**.

Micromine offers a suite of five software solutions that are used across the mining value chain aiding in the capture, validation and modelling of information from mineral exploration to full mine management and asset tracking, says Quin.

The software packages are written in one software language to integrate their functions from exploration to management. This offers an advantage to companies that use the data and information to make strategic decisions around the viability and profitability of orebodies, he says.

African mining companies use software to track and trend their production information and use Micromine products to fill a void in their information technology capabilities or to fulfil investor business requirements of oversight and management. The five packages are designed to interface with competitors' software packages, including new asset tracking and management technologies, says Quin.

The company focuses its product and service offerings across the Southern, Central and West African regions. It works closely with clients and actively seeks out grassroots programmes, such as exploration and advanced exploration programmes, prefeasibility studies, feasibility studies, current projects, mines that have gone into care and maintenance, as well as mines that are being rehabilitated, he says.

He says that the outlook for the company over the next two to five years is promising. Quin notes that more mining companies are emerging and demanding cost-effective mining management programmes to enable them to keep their own costs down. He believes that the company will increase its footprint within Africa over the same period and, as new mining projects increasingly use and deploy Micromine's software, the advantages of the solutions will increase demand for further products and functionality.

NEIL QUIN
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Micromine's entry solution is Field Marshal, which is a data capture and validation tool. The software is predominantly used by junior geologists to capture infield data using a hand-held device. The solution supports global positioning system (GPS), as well as infield data validation on all captured data. This results in the removal of finger faults prior to data transfer into the database at head office.

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What's the difference between a goalie who's asleep and one that's awake? With some goalies it's difficult to tell.

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The second product that the company offers is called GBIS, and is a data management tool. The software is used to store and further validate geological data from the field. It provides a framework within which to store, report and view data captured during exploration. To this extent, GBIS is configured to suit the information needs of each mining company, from junior explorers to large mining houses, Quinn says. The programme arranges the data and uses GPS data to triangulate and plot sample points to give a clearer picture of a company's exploration programmes. This enables early planning of mine design and operational needs, says Quin.

The third product, and the company's flagship product, is Micromine, an exploration, orebody modelling and mine design tool. The software uses the data captured during exploration to model, design and estimate underground resources, including underground mine design, opencast mine design and pit optimisation by modelling the extent and depth of the orebody. The solution can also be used to schedule the various stages of mine ramp-up, which improves efficiencies and reduces the time to production, explains Quin. Pitram, Micromine's fleet management and mine production control system, is the company's fourth solution offering. The levels of integration between Micromine and the Pitram solution include elements such as locations, materials and grades associated with the geological model. Pitram further integrates asset tracking and management technologies according to the communication technologies available on each mine.

""All mines are different, and our solution is configured to each mine's operational needs. Pitram integrates multiple tracking and management software systems on site, such as production tracking systems and mine planning systems," says Quin.

Pitram's use of proximity detection on vehicles is to improve loading and operations of underground and opencast mines. For example, Pitram can use data from onboard sensors to reduce the queuing times of trucks at loaders, and can also track materials to prevent dilution of ore grades, Quin says.

Further, the loader operator has a display inside the machine that shows the load profile of the truck being loaded to reduce overloading and underloading and to centre the load on the truck. This reduces the wear on trucks and improves efficiencies because the system ensures that equipment is used efficiently and appropriately.

The final software programme is Dome, which is a mine production management system. This gives the output of mines and enables analysis of production systems or integration into other systems on site. Dome is used to analyse, integrate and report mine information from a system. Vehicles have information management systems, production management and payload management systems. All these are integrated in Dome, which uses wireless mesh networking and GPS tracking systems to monitor, track and manage vehicles, he explains.

Dome draws information from Pitram, which is then used by management to assess operations. Different departments in the business will pull reports from different areas of the database and look at production, availability or material movements, as well as tracking personnel, he adds. Further, the programme is used to track all materials and resources, such as loaders, excavators, trucks, secondary vehicles and dozers underground and in opencast mines. This is then used to reduce the production time and to operate a mine efficiently and cost effectively, says Quin.

Dome enables management to determine which processes to change and how to change them to improve productivity. Information is disseminated in real time and further enables the maintenance of equipment to be done efficiently with reduced downtime.

The demand for Micromine's solutions has grown over the past few years, along with the services to support them. The company is aiming to increase demand for all its products and is paying attention to data management and fleet management programmes. Quin also reports an increase in demand for fleet management and mine production management programmes, as mining companies aim to reduce costs. The programmes enable users to improve efficiencies and the productivity of their fleets and help to get reserves out to the market quicker, he concludes.

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PITRAM
The purpose of the programme's use of proximity detection on vehicles is to improve loading and operations of underground and opencast mines

Kim: "Did you say that the referee spreads happiness wherever he goes?"
Jim: "No, I said whenever he goes."