

# Report: Mining industry's push for technology

There has certainly been a large push for automation and digitisation of mining operations, not just in South Africa but globally.



Source: Getty/Gallo

“For example, 3D modelling, virtual reality and augmented reality allow mining companies to visualise mine systems and use geospatial data to virtually construct buildings, plants and mines, as well as to train miners, solve problems, generate reports and monitor facilities and tailings dams, among myriad other uses. Smart data and machine learning can be used to improve operational efficiency, and mine safety and production workflow, generating data-driven analytics that help maximise productivity and efficiency. And drones and unmanned aerial systems can map and survey areas in record time, create time-lapse records of operations, and measure inventory and manage assets,” says Jessica Black Livingstone, counsel at Hogan Lovells, in Denver, US

The company, in partnership with Africa Legal, has launched a [report](#) that explores the impact of technology on mining in shaping Africa’s past, present and future.

## Skills gap

Results from the survey show that almost 69% of respondents believe the skills gap is the greatest future risk to further technological integration in the mining industry. There is a growing need for tech-related disciplines. Data and computer science graduates were ranked the third most important, with education in deep technology disciplines such as artificial intelligence (AI) and robotics identified as the fifth most important.

Collaboration is the key to addressing the skills gap in the sector. "Mining companies can work together with universities by making use of the research that the university provides for the industry. Further, mining companies should work with civil society to educate and encourage STEM subjects to attract more of the local community to qualifications in fields relating to mining.

The government also plays a key role, especially in developing countries, to achieve this. Oftentimes where there is large-scale mining, the government receives foreign direct investment. Therefore government can proactively create research and educational opportunities to increase the quality of the local workforce," says Kevin Pietersen, partner at Hogan Lovells Johannesburg.

## **Shift in attitude**

There seems to be a shift in attitudes towards technology within mining companies and surrounding communities and this will evolve in the future. Companies are under pressure to operate in an environmentally friendly manner. This is key in obtaining a social licence to operate. "The adoption of new technology is therefore a must have for mines as it presents several environmentally friendly incentives including health and safety, carbon emissions and water impacts. Technology also presents efficient production for mining companies. This is a good incentive for them to adopt new technologies, and dominant mining companies have already embraced technology in their operations," he says.

According to Matthew Johnson, partner and global head of mining at Hogan Lovells, the data and insights featured in this series of reports have highlighted that diversity, sustainability, and technology are intimately linked, and embracing all three areas is fundamental to the future success and longevity of the mining sector. "The influence of technology on the future of mining has vast potential. With the adoption of technology such as data analytics, robotics, automation and artificial intelligence, mining companies can start to develop new ways of extracting minerals in remote locations, improve health and safety practices, and drive the transition to renewable energy. As mines across the continent mature and drilling becomes harder, technology will extend mine life by enabling existing resources to be maximised, new development assets to be found and unlock greater value for all stakeholders."

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