

# Technology is only one part of what mining needs

By [Terence Corrigan](#)

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Technology is often presented as the antidote to South African mining's ills. Yet technology is only one factor in a much wider range of issues which need to be addressed. In any case, it is probably too late to revive the sub-sectors with which it is most associated - deep-level hard-rock gold and platinum mining.



Anglo American's Mbokalakweni Mine

The modernisation thesis is that advances in digital technology and robotics mean that, across all industries, repetitive and low-skilled jobs will be substituted by technology. If realised, this would appear to have massive implications for South Africa's traditional mining model with its emphasis on low-cost low-skilled labour. It would, according the Minerals Council South Africa (MCSA), extend the life of gold mining by as much as 25 years. But it would destroy many of the low-skilled jobs which make up the backbone of the country's mining employment.

In gold and platinum mining, the MCSA says, mechanisation would extend the life of deposits which are currently sterilised by depth and heat. In a publication last year, the council suggested that 84% of the country's nearly 6,000 tonne gold reserves could be converted to mechanised mining systems. "Modernisation could unlock the equivalent of 11 large gold mines (and eight platinum mines)", it said.

## If only things were this simple

The obvious problem is that modernisation requires much higher levels of workforce skills. The MCSA acknowledges this by describing it as a "people centred process", requiring 'reskilling' and cooperation between business, labour, government and NGOs. Given that South Africa has the worst labour relations in the world (ranked 137 out of 137 countries by the World Economic Forum in 2018), a cooperative reskilling process has to be considered unlikely.

In any case, labour-intensive extraction endures because it is a practicable solution to the realities of the industry and the country. Nor do the faltering outputs of South Africa's schooling system seem likely to change this in the foreseeable future. Modernisation looks like wishful thinking revolving around the workforce that policy makers wish we had rather than the one that actually exists in South Africa.

Then there are the simple economics of modernisation. Not for nothing is it called capital-intensive production. It requires money and the margins simply no longer exist in gold mining or underground platinum mining to allow change on a massive scale. As the MCSA itself said earlier this year, 95% of gold and 75% of platinum mines in the country are either loss-making or marginal. As the Institute of Race Relations' (IRR) publication, [\*Steering Mining into the Future: Can the Mining Industry Prepare itself for a Reinvigorated Tomorrow?\*](#) shows clear, only the depressed value of the rand prevented these problems manifesting much earlier.

One thing obvious to South African mining-market watchers in recent years is that the premium assets in the country are those that can be mined using intermediate skills and mechanisation. These are the open cast or shallow mines in the coal, platinum and iron ore sectors. It is no coincidence that Anglo American, while divesting of many South African assets, has kept two large mines of this sort – Mokalakwena (the world's largest open pit platinum mine) and the Kumba iron ore operation at Sishen – but has entirely exited gold and deep-level platinum mining.

## Hardly attractive to investors

Beyond the nature of South Africa's mineral assets, is the enabling environment for mining investment. With massive (30%) empowerment ownership requirements (effectively a tax on investment), a slow and often corrupt licensing system, threats to the constitutional guarantee of private ownership, rigid local procurement regulations and faltering (and expensive) state provision of water, electricity, transport, health, education and policing, this is hardly attractive.

It should be clear by now that technology, while applicable to some operations and certain to be increasingly important in future, will not restore the glory days of South African deep-level mining. It would be foolish to neglect it, but, as the IRR report concludes, "there is no real substitute for an improvement in the way the country is governed and its infrastructure maintained".

The tech-heavy idea of modernisation might be able to postpone the end in gold and underground platinum mining, but it alone is no panacea. A true revival of mining in South Africa hinges most of all on reforming the enabling environment. That's a much bigger task.

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