

# Digital transformation in mining - why it's a national necessity

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In early 2021, the Minerals Council South Africa published a report on how the country's mining industry was increasing its use of new innovations to strengthen several sectors of operation, with the Covid-19 lockdown accelerating the application of 4IR technologies.



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Council CEO Roger Baxter echoed this, stating that the council advocated for a people-centric, 4IR-enabled approach to the sector's modernisation and that the technology would allow national operators to be globally competitive.

4IR represents a dramatic shift across all industries in terms of digital transformation and new ways of conducting business. In mining, innovative methods such as network video and audio products make overseeing and managing operations more efficient and secure, while also serving as a scalable solution for what is, essentially, South Africa's most important sector economically. To understand those solutions, we need to take a look at specific functions and objectives.

## Increasing and protecting profit

Like with any industry, surveillance plays an essential role in security. South Africa's mining sector has long been impacted by criminal activity, ranging from theft and vandalism to looting. Violent crimes have recently brought operators to the brink, with some reconsidering their presence and ability to

continue to do business. When it comes to security, network video allows for increased response time and comprehensive location coverage – all managed from a single control room. Perimeter patrols can be costly or limited to a couple of strategic points that allow for blind spots. Surveillance cameras solve this issue. They're equipped with motion capabilities and thermal reading that enables them to detect breaches and potential false alarms.

Because of their size and intricacies, mining operations can suffer from redundancies that affect the operator's ability to maximise revenue and output. Network video aims to provide as much information as possible in terms of a site's operations, ranging from how much downtime is incurred to whether resources or mined material is lost through mismanagement. Take it a step further, network audio is a useful communication tool. By integrating audio functionalities, operators can issue alerts and notifications on a wide scale.



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## Sustainability and going green

Sitting at the core of every enterprise's digital transformation strategy is data. Data, gathered from multiple sources in many different ways, is set to radically change the mining sector from top to bottom, from the ways in which people work to the kind of work they do. Mines of the future will be able to unlock new value by deploying new digital and analytical skills and

present new opportunities in the face of growing challenges.

One of those challenges lies with the environment. The green revolution is here, and mining operators can lead the charge by analysing their environmental impact. Today's network video products are equipped with sensors and software that can identify and measure site elements such as air quality, noise levels, waste discharge, and water management. The gathered data can then be used – with the help of advanced AI solutions – to formulate new models and highlight specific areas of activity that can be improved, reduced, or upgraded to meet outlined environmental standards.

The name of the game is sustainability, with many industries now looking at how they can embrace it both in terms of their organisation, and the infrastructure they deploy. The best monitoring solutions are both scalable and long-lasting, providing benefits in both ways.



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## Promoting workplace safety

Mining can be a dangerous job, which is why it is essential that operators take every step to ensure the occupational safety of all employees, in line with national commitments that they are set to adopt continuous real-time monitoring solutions.

There are several application scenarios. For example, visibility is a highly impactful challenge for many mining operators and their employees. Underground tunnels can be poorly lit, while with open-air mines, the amount of dust kicked up by excavation and transport processes can create hazardous working conditions. Surveillance cameras equipped with advanced infrared settings and low-light functionality can be used to survey areas regardless of conditions. Meanwhile, solutions such as onboard and body-worn cameras can be used to monitor specific individuals and equipment, identify leaks or malfunctions that could threaten lives, as well as ensure occupational safety policies and PPE requirements are adhered to.

Whether it be for safety, productivity, or the environment, the best 4IR mining solutions are ones that integrate and support existing systems to fulfil a core function. Surveillance goes above and beyond just watching for intruders and criminals and, by adopting cutting-edge solutions, South Africa's mines can be enabled for the long term and upgraded in the name of efficiency, security, and opportunity.

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