



## Op-ed: Smart mining won't leave humans behind

Mining needs to strike a balance between people and technology in the future.

As leaders gather at COP26 to deliver ambitious net-zero commitments, there is mounting pressure for the mining sector to play a role in achieving decarbonization and contributing to the clean energy transition - but how will they respond? Beyond the primary trends of automation, transparency, and digitalization, is there a chance to reshape the future of smart mining in a different way?

According to BCG's Digital Acceleration Index (DAI), the metals and mining sector is already around 30-40% less digitally mature than comparable industries - such as automotive or chemical. So with the benefits of digitalization clear to see, and many mining companies leaving the pandemic in surprising strong financial shape, it's no surprise that the World Economic Forum's most recent Future of Jobs Report found that 79% of mining companies were accelerating the digitalization of their work processes and adoption of tools. But as we meet for the first post-COVID Smart Mining Conference, it's essential that we recognise that the most successful innovations of the last 18 months have been those that paired technological solutions with human needs. Doing things differently means placing people at the centre of smart mining.

It's easy to think that technology itself is automatically a leveller. But at its core, a smart mine is not just digitally connected and autonomous, isn't aimed only at reducing the increasing complexity of a mine site, and doesn't measure success only through improved decision-making and optimising operations. A smart mine is also a human-centred and environmentally-conscious mine. It is encouraging to see the industry dialogue moving already in this direction, with digital solutions enabling remote working, reducing the number of people onsite and engaged in dangerous tasks, and lowering the incidence of injury. And for those required on the mine site, wearable devices are being used to track workforce during mine operations, monitor fatigue levels, and providing the means to communicate with employees and remove them from hazardous unforeseen events.

Virtual reality is helping empower and upskill workers - providing organisations with realistic and efficient ways of building the capabilities of workers in high-risk environments. Further, machine learning processes are manipulating data in real-time, flagging equipment that is on the verge of failure and in need of maintenance - helping reduce costs associated with repair and alleviating the safety risk of machine malfunction. A study by Accenture and The World Economic Forum concluded that as many as 1,000 deaths and 44,000 could be prevented in the next 10 years as a result of digital transformation initiatives - as well as a reduction of 610 million tonnes of CO2 emissions, with an estimated value to society and environment of US\$30 billion, all whilst adding more than US\$425 billion of value for the customers, society and environment.

Whilst these are a few promising examples of how digital tools can change the game for the future of mining and its wider positive impact, challenges still remain. Work needs to be done to help further develop and refine existing technologies, encourage greater uptake, and also get pioneering technology under development to market. In addition, due to the complex nature of mining and resource deposits, it is not an easy task to automate and digitalize operations, and businesses must carefully consider the unique properties and demands of their operations and identify the right tools which will help complement these. Again, an opportunity to learn and apply what we know from humans.

Between 17-18 November, business leaders, policy makers and researchers will convene for the 2021 edition of the Smart Mining Conference (SMC2021), hosted by the Institute for Advanced Mining Technologies of RWTH Aachen University (AMT) and VDMA Mining - in order to address what smart mining means in the post-COVID era, provide solutions to navigate the next wave of transformation, discuss strategies for putting people at the centre of technological innovation, and align on decarbonisation strategies to shape a sustainable future. Facilitating the sharing of best practices, innovations and ideas, SMC2021 will empower key actors to define the future of smart mining and make meaningful progress towards advancing digitalisation in a way that empowers people and planet.

As we move further into the digital age and low-carbon future, harnessing emerging technologies to empower people provides a compelling way to deliver shared prosperity for the mining sector and wider society. The COVID-19 pandemic and the looming climate crisis has made innovation and technology critical for the mining sectors resilience and sustainable prosperity, yet it has also sharpened the focus on technologies unresolved challenges - such as its impact on the mining workforce. But carefully placing people and ESG at the forefront of digital transformation gives mining companies a strong pathway for growth, trust and sustained, sustainable outcomes.

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