

NEWS ALERT

Meet the mines of the future: advanced robotics, autonomous vehicles, and AI-driven digital twins

Industry leaders explore the role of technology in optimising mine performance and safety to accelerate the drive to net zero in a new Seequent insights paper

CHRISTCHURCH, NEW ZEALAND, July 28, 2023 – [Seequent](#), The Bentley Subsurface Company, today announced the launch of its new insights paper *Beyond the Hype: how technology can drive mining operations' performance*. The paper gives insights into how emerging technologies can be implemented across the mining sector, the challenges faced, and the benefits they deliver.

Beyond the Hype features contributions by thought leaders from AngloGold Ashanti, Hecla Mining, IntelliSense.io, RockMass Technologies, and Seequent. It reflects key discussion points made at an industry forum hosted by Seequent and moderated by **Emily King, founder and CEO of Prospector**. The paper is introduced by **Seequent's Pieter Neethling, Segment Director, Mining Operations**.

Key points raised in the insights paper include:

- Accurate data is at the heart of modern mining. The application of geological data remains fundamental to making crucial decisions. Mining companies need to take advantage of better modelling and a new hybrid of artificial intelligence and digital twins to shift towards agile mining operations.
- Securing future investment will require a focus on the safety and sustainability benefits of new and emerging technologies, supporting the push for net zero.
- Greater industry collaboration and standardisation is needed to integrate new digital workflows and power long-lasting change.

The paper revealed that mining companies face significant challenges when implementing innovative, emerging technologies. **Dr Grant Kopec, VP of Global Field Operations, IntelliSense**, explained: "One significant hurdle is the integration of new workflows, as users may revert to their previous methods of working if they encounter data outages or quality issues with a new system." Therefore, extensive support for users is required whenever new technology is implemented.

Matt Blattman, Director of Technical Services, Hecla Mining, commented: "We need to learn from other industries in terms of our willingness to invest in research and development and we should accept the necessary spending as an investment. The companies in our industry who do this are the ones who are going to find the new solutions."

One of the key developments is software that allows the mine face to be more quickly georeferenced and mapped in 3D. **Shelby Yee, Founder and CEO, RockMass Technologies**, commented: "This ensures easy-to-capture higher quality data that is usable by the geologists to make their decisions in real time." Mining is working to also implement this technology in its surface operations and to merge the data with drone



scans to obtain accurate face profiles and structural data. This new data improves blasting fragmentation, allows better grade control, cuts costs, increases productivity, and improves safety.”

Regarding investment into new technologies, **Marcelo Godoy, Chief Technology Officer, AngloGold Ashanti**, explained: “The focus of our new technology acquisition is electric vehicles. The use of EVs in underground mines is seen as a great step forward because it reduces ventilation requirements due to the significant reduction in diesel particulate matter and heat. Advanced robotics and autonomous systems also open huge possibilities, and I have no doubt that by the time we reach net zero emissions in 2050, our mines will be run by robots.”

The thought leaders contributing to the insights paper agreed that a combination of electric vehicles, virtual reality, advanced robotics, autonomous haulage systems, and unmanned aerial vehicles would create mining operations that are very different to those of today.

Alex Boucher, Technical Solutions Director, Seequent, added: “New technology is instrumental to driving the performance and safety standards of the mining industry and will accelerate the push for net zero. There are huge advances in technological development taking place now. But greater collaboration is needed across the industry and with technology service providers to create the right proofs of concept and implement new systems that will improve every aspect of mining operations.”

Read Seequent’s *Beyond the Hype: how technology can drive mining operations’ performance insights* [paper](#).

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About Seequent

Seequent builds world-leading subsurface software, helping to create a better understanding of the earth to ensure a better world for all.

We are constantly evolving at the forefront of technology to transform how geoprofessionals work, eliminating barriers to understanding the earth’s challenges by connecting teams with the tools they need.

Every day, our customers in over 100 countries work to develop mineral resources more sustainably, design and build better infrastructure, protect the environment, source renewable energy, and help resolve historical challenges such as groundwater contamination and ageing infrastructure.

Our integrated earth modelling, geo-data management, and team collaboration software enables our customers to see a more complete picture of the earth: because with more understanding comes better decisions – for people and the planet.

Headquartered in New Zealand with global reach, Seequent is The Bentley Subsurface Company. Together, we are helping build a more resilient world. www.seequent.com

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