



CONNECTIVITY,
AUTOMATION & DATA:

POWERING MINES OF THE FUTURE



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President of the Rocktec Division & Managing Director of Epiroc Rock Drills

Jonas Albertson is the President of the Rocktec Division & Managing Director of Epiroc Rock Drills AB. He has over 20 years of experience serving mining customers with cutting edge products and services. While his team currently develops control and automation solutions for robotized mining and construction, his vision is driving digitalization of the mining industry at large.



Digital Engineering transformation is not just about technology but also about people and change management processes."



The Future Belongs to the Connected Mine

Since 2013, the mining industry has been weighed by a spike in operational costs leading to lower profitability.

Operational Equipment Efficiency (OEE) for the mining sector compares dismally to other adjacent industries such as the automotive sector. (25% OEE in mining vs 90% in automotive). The mining industry is also grappling with challenges such as new safety restrictions, costs of transporting personnel to remote areas and paucity of skilled labour which taken together affect productivity and spike operational costs. To remain competitive, mining firms are looking to digitalize and automate their operations to boost productivity, enhance safety and reduce enterprise risk, leading to significant increases in bottomline. Some of the digital activities undertaken by many companies include remotely operating machines from a control room, collecting machine performance data to optimize use of the equipment and keeping track of personnel for improving safety & efficiency.

Emergence of fast, affordable and reliable connectivity solutions are transforming the length and breadth of the mining industry. As data flows from below the ground to control rooms, it is changing the way the industry is looking at safety and efficiency.

Epiroc and Hemlo Goldmines

Hemlo is wholly owned by Barrick Gold Corp, the world's largest gold mining company and holds probable gold reserves of \$85.9 million. Epiroc's Teleremote mining is helping Barrick reach a deeper section of its Hemlo mine in Canada. Running an Epiroc Scooptram ST14 loader from the surface enhances worker safety while reducing entilation and climate control requirements underground.



Keys to Success



Mobilaris real-time location tracking

Mine-wide use of Mobilaris' Mining Intelligence not only gives Hemlo real-time equipment tracking, but the precise location of each person underground – a vital advantage in case of an emergency.



Safer, more comfortable environment

Automated load haul-dump operation reduces ventilation and climate control requirements for deep mining operations and moves operators to a safer, more comfortable environment than is possible with line-of-sight radio remote control.



Multi-use Wi-Fi

Wireless infrastructure for autonomous operation also enables live access to performance data and provides mine-wide network access for location tracking and communication capabilities like mid-interval reporting.

Benefits of Digital Mines

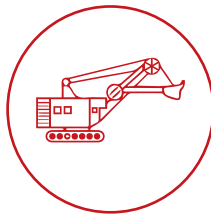
Automated solutions allow personnel to work outside of hazardous areas, or even far away from the actual sites. There are already examples of machinery being successfully operated from control rooms many miles away.



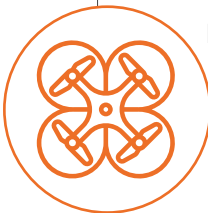
Remotely operated mining equipment can be designed to work at optimal levels leading to considerably less wear and tear. They can also operate between shift changes and remain unaffected by blast clearances or when the mine is being ventilated.



VR and AR solutions can be utilized for variety of mining operations such as equipment training, safety training, field maintenance solutions, and virtual tours of the mines.



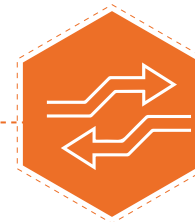
Drones can be used for variety of activities such as equipment inspection, evaluating terrain, and filming blasts.



Data Analytics: Data analytics for mining is moving higher up the ladder, and is making a huge difference to visibility of people and assets. Data analytics not only helps in asset tracking, it also makes a huge difference in people security - especially in evacuation scenarios where it is critical to know where people are at any given time.

Collaborating to Shape the Future Why Collaborate?

Cross-Domain
knowledge



Complementary
Customer Need



Shorter Time
to Market



Cross Domain Knowledge - I believe collaboration with other industries will be crucial for driving future innovation in mining industries. Mining is a very niche and small industry compared to other industries such as automotive, aerospace, industrial etc. Hence it is important to find partners across these industries to leverage their knowledge for solving common challenges.

Shorter Time to Market - In today's world it is not only important to constantly improve your products, but also introduce new products at a fast rate. Collaboration with complimentary peers and startups enable faster PDLC and decrease the time to release the product.

Wider Ecosystem Play - In today's competitive world, customers are increasingly demanding connected turnkey solutions. It is important for organisations to tap into capabilities, functions and insights of peers that offer complimentary solutions to arrive at those synergies.



Epiroc and Ericsson

Epiroc and Ericsson came together to create a solution for reliable, high-performance wireless connectivity in the mines powered by high-performing LTE (Long-Term Evolution) and 5G mobile technology solutions. Currently used Wi-Fi systems are not reliable when it comes to safety critical functions and do not harness the full power of automation. Cellular technology and the introduction of 5G is critical to realize the full value of digitalization and automation for smart industries. This will open up new business models and ecosystems across the mining industry, telecom services providers in each market, and Ericsson. Synergizing Ericsson's expertise in telecommunications and Epiroc's cutting-edge technology in mining equipment, the solution offers stable and secure mining operations, leading to increased utilization, improved productivity and reduced costs.

Advantage 5G/LTE

for Underground
and Open Pit Mines





Epiroc and Mobilaris

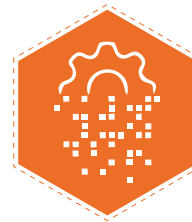
Epiroc has partnered and invested in Mobilaris - a location-based intelligence and decision support solution startup to develop key components and new approaches to integrate and manage information together with positions from many different systems at customers. We make the information easily searchable or visualize the information real-time to facilitate better decision making. This is aimed at helping mining customers increase the production efficiency and safety of the mine. A lot of time in mines is spent in locating pieces of equipment; here tagging the machines makes a huge difference in efficiency. The system combines positioning data with machine and operator data and serves it on the same visualization layer. This offers higher transparency into activities and the status of the different equipment.

How the Future of Mining Technology is more about People

When it comes to innovation and technology, it's all about people and change management. Whenever issues arise I rarely see that it's technology related, it has more to do with the culture of work and adaptability. While skills can always be imparted, the biggest determinant of the success of innovative change is the attitude and the commitment.

Jonas Albertson's Talent Toolkit

I believe in hiring for the attitude and not for skills. Having said that, here is my toolkit for effective hiring in an age where competition for the talent is high.



Brand Transformation

Get society to understand what we're doing



Experiment with Talent Acquisition

Explore new channels of recruitment



Innovate with Social Media

Telling the brand story through videos, reach out and engage with the audience



Be Closer to the Talent

Being located in the vicinity of Universities where recruits are spoilt for choice

Making Innovation Agile

Agile innovation involves making the customer a part of the solution to the problem. As human beings there is often an issue of saying that this problem can only be solved in a certain way. When the thinking is towards the customer's problem and not the solution, we can significantly increase the speed of arriving at the solution. The agile approach makes the customer a part of the process, and makes them an important part of the solution.

Mining Trends of the Future:








Electrification – As mining seeks to become more environmentally sustainable there will be an increasing focus on electrification of equipment, especially since handling exhaust emissions is a major concern area.

Automation – As with the automation wave sweeping various industries, AI and Machine Learning will increase the level of efficiency and safety in mines with autonomous machines and processes.

Artificial Intelligence: AI is emerging as a game changer in the field of mining. Most mining operations require meticulous planning for a complex operation with several dependencies. Rule-oriented planning comes in as a significant improvement on the way operations work. The lean principles reduce the amount of slack you need to work with to avoid running empty on the minerals that are being processed.



What you (probably) didn't know about Jonas Albertson

-  **My Favourite Book**
My Golf Clubs
-  **Tech I'm betting on**
AI
-  **My Decisions: Gut or Hard Analytics**
30% gut
-  **My 3 word message for young engineers**
"Curiosity, openness, transparency"
-  **How I think out of the box**
Surround myself with diverse people
-  **Trait I look for**
Ability to develop themselves
-  **Characteristics of a leader**
Transparency, Team player

Jonas Albertson on impact of Digital Engineering



Given Rating



Average rating amongst interviewees

1

Lowest

5

Highest