

A Highly Technical Engineering Summit For Mine Operators Implementing Automation Technologies

MININGTECH
AFRICA

AUTONOMOUS MINING & AI OPERATIONS MININGTECH

CONFERENCE&EXPO | 30 JUNE 2026, CAPE TOWN, ZA

Africa

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Engineering AI, Robotics & Autonomous Operations for the Next Generation of African Mines

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Africa's Most Technical Mining Engineering Conference – Built for Mine Operators

A Technical Engineering Summit for Operators Delivering Automation in Africa's Most Complex Mining Environments

MININGTECH AFRICA 2026 —

Where Autonomous Mining Moves from Concept to Deployment

Africa's Mining Industry Is Entering Its Most Critical Decade

Automation is no longer optional

Across Australia, Canada, and Latin America, autonomous haulage, remote operations, AI-driven planning, and robotic drilling are already delivering measurable gains in safety, productivity, and cost efficiency.

Africa risks being left behind — unless it accelerates now

But this is not a simple technology adoption challenge

Africa's Mines Are Fundamentally Different

Why This Event Exists

Most global mining conferences talk about innovation. This event is about implementation.

African operators are facing uniquely complex engineering problems:

- Some of the deepest underground mines
- Harsh, variable geological conditions
- Legacy infrastructure not designed for automation
- Intermittent connectivity and power constraints

You cannot copy-paste automation strategies from Australia into Africa.

An Industry at an Inflection Point

Until recently, these barriers slowed adoption.

Now, that is changing rapidly:

- Safety pressures in deep-level mining are increasing
- Labour productivity is under intense scrutiny
- Sensor technology and AI have matured
- Remote operations are becoming viable
- Connectivity solutions are improving

African mining companies are now actively defining their automation strategies for the next decade.

The question is no longer if — it is how, where, and how fast

What Makes MININGTECH Africa Different

This is not a policy forum.

This is not a high-level “future of mining” discussion.

This is a technical, operator-led engineering summit.

Every session is built around:

- Real deployment challenges
- Engineering constraints in African environments
- System integration, not isolated technologies
- Lessons from global leaders — adapted for Africa

Built for Mine Operators — Not Observers

MININGTECH AFRICA is designed specifically for:

- Mining engineers and technical leaders
- Automation and digital transformation teams
- Operations and production managers
- Innovation and technology deployment leads
- Practical pathways to implementation in Africa

Join the Engineers Building That Future

MININGTECH AFRICA 2026 Is Where Those Solutions Are Defined, Challenged, And Deployed

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08:30

Registration

09:00

MiningTech Africa: Chairs Introduction

09:20

Critical Minerals & the Future Competitiveness of African Mining

*Shamim Mansoor, Managing Director,
Global Metals & Mining*

As the global race for critical minerals intensifies, competitive advantage is increasingly being defined by operational intelligence, resource confidence, ESG performance, and the ability to leverage data-driven decision making.

This session explores how AI, advanced analytics, and digital mining technologies are transforming the economics and strategic positioning of mining operations across Africa.

From improving operational performance and resource optimisation to strengthening investment attractiveness and supply chain competitiveness, the discussion examines why technology is becoming a critical differentiator for mining companies seeking to compete in an increasingly complex and rapidly evolving global minerals market.

09:40



AI, Trust and the Future of Geological Modelling: Beyond the Black Box

*Jacques Nel, Geologist & Snr Consultant,
Maptek*

Can geologists trust AI-generated models? Artificial intelligence is rapidly reshaping geological modelling, resource estimation, and exploration workflows, offering new opportunities to improve speed, consistency, and insight generation. Yet as machine learning becomes increasingly embedded within geological decision-making, questions around transparency, validation, and trust are moving to the forefront.

This presentation examines how mining organisations can harness AI-driven modelling capabilities while maintaining geological integrity, domain expertise, and confidence in the outcomes. Through practical examples and industry experience, it highlights how AI can enhance — rather than replace — the role of the geologist in building more informed and defensible resource models.

10:00

Council for Geoscience



Building the Data Foundations for Digital Mining: Is the Underlying Geological Data fit for Purpose?

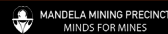
*Siphelele Buthelezi, Executive Manager,
Council for Geoscience*

The mining industry is investing heavily in artificial intelligence, advanced analytics, digital twins, and autonomous operations. Yet the effectiveness of these technologies ultimately

depends on the quality, accessibility, and integrity of the geological data that underpins them.

Many organisations continue to face challenges associated with fragmented datasets, legacy exploration records, inconsistent standards, and limited interoperability between systems. These constraints can undermine resource confidence, restrict analytical capability, and limit the value generated from digital mining initiatives. Reliable geological information is increasingly becoming a strategic asset. From exploration and resource modelling through to mine planning and operational optimisation, robust digital geological infrastructure provides the foundation upon which modern mining technologies are built. Understanding how geological data can be captured, integrated, preserved, and mobilised is becoming essential for organisations seeking to unlock the full potential of digital mining.

10:20



Why Static Mine Plans Fail: Building Adaptive Mining Operations with AI

*Martin Pretorius, Program Manager, Mandela
Mining Precinct*

Mine plans are typically built using assumptions about geology, equipment performance, production rates, and operational constraints. The challenge is that mining operations rarely behave exactly as planned. Changing conditions, unexpected disruptions, and evolving priorities can quickly reduce the value of even the most carefully developed plans.

As mining companies seek greater productivity, agility, and operational resilience, attention is turning toward AI-driven planning systems capable of continuously evaluating alternatives, optimising schedules, and adapting decisions as conditions change.

Combining machine learning, predictive modelling, and intelligent scheduling techniques, these emerging approaches enable mining organisations to move beyond periodic planning cycles and towards more dynamic, responsive, and data-driven operations. The implications extend beyond productivity alone, influencing resource utilisation, operational flexibility, and the quality of decision-making across the mine value chain.

10:40

VECTR LABS

From Data to Decisions: Building the Intelligent Mining Operation

*Scott McGill, Technical and Project Lead,
Vectr Labs*

Most mining operations are rich in data but poor in actionable intelligence. Production systems, maintenance platforms, safety records, compliance reporting, fleet management tools, and operational databases often operate independently, creating information silos that limit visibility and slow decision-making. The challenge is no longer collecting data. It is creating a connected operational environment capable of identifying emerging risks, revealing performance bottlenecks, and supporting faster, more informed decisions across the business.

Drawing on practical mining deployments, this session demonstrates how advanced analytics, artificial intelligence, and integrated operational intelligence platforms are helping mining organisations move beyond reporting and toward real-time operational awareness. The result is improved performance visibility,

stronger safety and compliance oversight, and a more responsive approach to managing increasingly complex mining operations.

11:00

BREAKING GROUND: NETWORKING SESSION

Hosted by VECTR LABS

11:40



Applying Computer Vision and Machine Learning to Haul Road Condition Monitoring in Open Pit Mining

*Thegaran Naidoo, Senior Research
Technologist, CSIR*

Poor haul road conditions remain a persistent challenge for open pit mining operations, contributing to increased tyre wear, higher fuel consumption, reduced equipment availability, safety risks, and escalating maintenance costs. Yet many operations still rely on periodic inspections and reactive maintenance approaches that struggle to provide timely visibility into deteriorating road conditions.

This presentation demonstrates how computer vision and machine learning can be used to automate road condition monitoring, identify emerging defects before they become operational problems, and support more proactive maintenance strategies.

Attendees will gain insight into how AI-driven infrastructure intelligence can improve fleet performance, optimise maintenance planning, and deliver measurable operational benefits across large-scale mining operations.

12:00



You Can't Optimise What You Can't See: Building Operational Visibility Through Spatial Intelligence

*Marc Van Der Westhuizen, Commercial
Manager, Dwyka Mining Services*

The challenge mining operators face is not obtaining more scans. It is understanding what is happening across increasingly complex mining environments, maintaining situational awareness, and making better decisions based on an accurate representation of reality.

Many organisations continue to rely on fragmented datasets, periodic surveys, and disconnected information sources that can limit situational awareness and delay decision-making. Advances in LiDAR, reality capture, drone mapping, and digital twin technologies are changing this dynamic by creating highly accurate digital representations of mining environments that can be continuously updated and integrated into operational workflows.

The ability to capture, visualise, and contextualise spatial information is rapidly becoming a core capability within modern mining operations. From improving safety and planning accuracy to supporting automation, remote operations, and future autonomous mining systems, spatial intelligence is emerging as a critical foundation for the connected and intelligent mine.

12:20



Becoming a Frontier Firm in the Agentic Age

Dr. Gargi Mishra, Industry Lead Energy and Resources (Africa), Microsoft

Across the mining industry, artificial intelligence is moving beyond experimentation and into operational environments. Yet while significant attention has been placed on technology deployment, many organisations are discovering that the greatest barrier to AI adoption is not technical capability but organisational readiness. The challenge is redesigning the organisation, decision-making structures, workforce, and operating model around AI.

Traditional operating models were designed around human-led processes, hierarchical decision-making, and relatively static information flows. Agentic AI introduces a fundamentally different dynamic, where intelligent systems can analyse information, generate recommendations, automate workflows, and increasingly support operational decisions at scale.

The organisations capturing the greatest value from AI are not simply deploying new tools. They are redesigning how work is performed, how decisions are made, how teams collaborate, and how governance is structured. As mining companies look beyond isolated pilots and towards enterprise-wide transformation, questions around leadership, workforce readiness, accountability, and organisational design are becoming central to long-term competitiveness.

This session examines what it means to become a Frontier Firm in the mining sector and why the next phase of industry transformation may depend less on technology adoption and more on the ability to build an operating model designed for the age of AI.

12:40



The Hybrid Fleet Challenge: Operating Between Manual and Autonomous Mining

Kabelo Nkoana, Business Line Manager - Automation, SANDVIK Mining & Rock Technology

The reality for most mining operations is that autonomous and human-operated equipment will coexist for many years. Managing this transition safely and efficiently remains one of the most significant challenges facing mining companies pursuing autonomous operations.

Key considerations include traffic management, collision avoidance, operator awareness, workforce interaction, and the operational frameworks required to support mixed-fleet environments. Understanding how these systems work together is becoming increasingly important as autonomous technologies move from pilot projects into active production environments.

This presentation examines the technologies, operational practices, and safety strategies helping mining organisations reduce risk, maintain productivity, and build confidence in the transition towards autonomous mining.

13:00

AI, AUTOMATION & LUNCH

14:00



Why Connected Mines Still Make Disconnected Decisions

Reece Hanning, Senior BDM, Hexagon

Many mining operations have successfully digitised individual functions, yet safety systems, fleet management platforms, operational controls, and planning tools often continue

to operate in isolation. The result can be inconsistent decisions, conflicting operational priorities, and reduced visibility across the wider operation.

As mines become increasingly connected and automated, understanding how different systems interact — and how their decisions influence one another — is becoming a critical operational requirement. Key considerations include data consistency, interoperability, operational workflows, and the alignment of safety and production objectives.

Achieving a common operational picture across multiple platforms is becoming essential for organisations seeking to improve decision-making, strengthen safety performance, reduce operational complexity, and support increasingly autonomous mining environments.

14:20



Connecting Mining Systems Across the Value Chain

Rodrick Naidoo, Managing Director South Africa, Rockwell Automation

Despite significant investment in automation, AI, and digital technologies, many mining organisations continue to operate with disconnected systems and fragmented operational data. As a result, valuable information often remains trapped within individual platforms, limiting visibility and reducing the effectiveness of operational decision-making.

Understanding how automation systems, industrial controls, operational intelligence platforms, communications infrastructure, and data environments can work together is becoming a critical capability for modern mining operations. Areas of focus include interoperability, OT/IT convergence, real-time data integration, operational visibility, and the creation of scalable digital architectures that support connected operations.

The organisations achieving the greatest value from digital transformation are increasingly those that can connect systems, align information flows, and create a common operational view across the mining value chain.

14:40



Can We See Risk Before It Happens? Digital Monitoring in Tailings Operations

Phuthogo Moganedi, Group Head Business Improvement, Fraser Alexander

Tailings facilities remain among the most critical assets within any mining operation, requiring continuous attention to safety, compliance, environmental performance, and operational risk. Yet many monitoring activities continue to rely on periodic inspections, manual reporting processes, and fragmented information sources that can limit visibility and delay intervention when conditions begin to change.

As monitoring technologies become more connected and accessible, mining organisations are gaining new opportunities to improve situational awareness through real-time operational data, environmental monitoring systems, and integrated visibility platforms. Understanding how these technologies can support earlier risk identification, faster response times, and more informed operational decision-making is becoming increasingly important for tailings and mining services environments.

Key considerations include operational visibility, risk monitoring, data integration, environmental accountability, and the role of intelligent infrastructure in supporting safer, more resilient, and more sustainable mining operations.

15:00



Earning the Right to Do AI: Lessons from the Mining Data Trenches

Philip Mare, Operations Director, MMS

Many initiatives are investing heavily in artificial intelligence, yet many initiatives continue to struggle to move beyond proof-of-concept and pilot phases. In many cases, the challenge has little to do with the AI itself. The real constraints lie in data quality, system integration, cybersecurity, operational ownership, and the ability to create trusted information flows across the business.

Understanding what makes an organisation genuinely AI-ready requires looking beyond algorithms and examining the foundations that support them. Areas such as instrumentation, data engineering, application design, governance, OT/IT integration, and workforce adoption often determine whether AI initiatives deliver operational value or become isolated experiments.

Drawing on practical experience implementing metal accounting, production reporting, and logistics platforms within mining environments, this session highlights the capabilities, disciplines, and organisational foundations required to support production-grade AI. Particular attention will be given to data trust, system architecture, operational context, and the role of domain experts in creating AI solutions that can be deployed, adopted, and sustained within real mining operations.

15:20



Can You Automate What You Can't See? Building the Operational Visibility Required for Autonomous Mining

Mark Stevens, Chief Innovation Officer, Schauburg Systems

Many mining organisations view autonomy as a vehicle, software, or automation challenge. In reality, autonomous operations depend on something more fundamental: the ability to understand what is happening across the mine in real time.

Workforce location, equipment movements, proximity risks, operational activities, and environmental conditions must all be visible, contextualised, and available to decision-making systems before higher levels of automation can be safely deployed. Without this foundation, autonomous technologies can struggle to operate effectively within complex and dynamic mining environments.

Understanding how real-time location systems, workforce visibility platforms, collision avoidance technologies, connected infrastructure, and operational intelligence systems work together is becoming increasingly important for organisations pursuing autonomous mining strategies. Creating situational awareness across the operation is rapidly emerging as a critical step in the transition from monitoring activities to enabling intelligent, data-driven, and increasingly autonomous mining environments.

15:40

MININGTECH AFTERNOON EXCHANGE

16:20



Can Mining Operations Become Self-Optimising?

Petrus Calitz, Business Development Manager
SADC, **Wenco International Mining Systems**

Mining operations generate vast amounts of operational data, yet many critical decisions relating to fleet movements, equipment utilisation, production priorities, and resource allocation still rely heavily on manual intervention. As artificial intelligence, operational analytics, and connected mining platforms continue to mature, attention is increasingly shifting towards a new question: can mining operations begin to optimise themselves in real time?

Advances in AI-assisted dispatch, predictive operational intelligence, dynamic fleet optimisation, and automated decision-support systems are creating opportunities to move beyond traditional monitoring and reporting towards more adaptive and responsive mining operations. Rather than simply identifying issues after they occur, these technologies can help predict emerging constraints, recommend corrective actions, and continuously optimise operational performance as conditions change.

Understanding how AI can support operational execution, fleet productivity, production performance, and real-time decision-making is becoming increasingly important for mining organisations seeking greater efficiency, agility, and competitiveness. Key considerations include human oversight, decision confidence, operational governance, and the practical realities of introducing AI-driven optimisation into live mining environments.

16:40

FORTINET

Can Autonomous Mining Be Secure? The Cybersecurity Challenge Facing Connected Operations

Martin Fernandes, Business Development Manager OT, **Fortinet**

Autonomous mining systems rely on continuous communication between equipment, industrial control systems, sensors, operational technologies, and remote operations centres. Understanding how cyber threats can impact safety, operational continuity, and autonomous decision-making is becoming a critical capability for mining leaders and technology teams.

Key considerations include securing industrial control systems, protecting communications networks, identifying vulnerabilities within connected mining environments, and building resilient architectures capable of maintaining safe operations during cyber incidents. The relationship between cybersecurity, operational risk, system availability, and workforce safety is becoming increasingly important as mines pursue higher levels of automation and autonomy.

Network segmentation, intrusion detection, secure communications, OT security frameworks, and cyber resilience strategies are emerging as essential components of modern mining infrastructure. Evaluating how these capabilities support operational continuity and protect autonomous mining systems will be critical for organisations seeking to scale connected and autonomous operations safely.

17:00



The Remote Operations Challenge: Centralising Visibility Without Losing Control

Hugh Maleka, Market Engagement Manager,
Ramjack Technology Solutions

Remote Operations Centres are becoming an increasingly important component of modern mining operations, enabling organisations to centralise operational visibility, coordinate decision-making, and improve the management of assets, production, and risk across multiple sites. However, moving operational oversight away from the mine introduces new challenges relating to situational awareness, system integration, accountability, communications reliability, and the relationship between site-based teams and remote operators.

Understanding what information is required to support effective remote decision-making, how operational systems can be integrated into a common operating environment, and how responsibilities are shared between mine sites and remote operations teams is becoming increasingly important as mining companies expand their use of centralised operating models.

Remote operations architectures, real-time operational visibility, fleet and safety system integration, communications infrastructure, and human-machine interaction frameworks are emerging as key considerations for organisations seeking to improve operational performance, support multi-site management, and establish the foundations for future autonomous mining operations.

17:20



Beyond Gas Detection: Using AI to Predict Worker Risk in Underground Mining

Kevin Schlorke, Head of Smart Platform Solutions, **Schauburg Systems**

Most underground mining operations monitor carbon monoxide concentrations, but understanding how those readings translate into actual worker risk remains a significant challenge. As safety systems become more intelligent, attention is increasingly shifting from measuring environmental conditions to predicting physiological impact and identifying when intervention may be required.

Understanding the strengths and limitations of traditional gas monitoring, the relationship between exposure and worker health, and the role of AI-driven risk modelling is becoming increasingly important for organisations seeking to improve underground safety performance. Areas of focus include predictive safety analytics, COHb estimation modelling, real-time risk forecasting, and the integration of artificial intelligence into existing safety monitoring environments.

The ability to forecast risk before workers experience harmful exposure has the potential to improve intervention strategies, support better operational decisions, and strengthen safety outcomes across underground mining operations.

17:40

PANEL

From Digital Mine to Intelligent Mine: What Does Operational Readiness Really Look Like?

Shamim Mansoor, Managing Director,
Global Metals & Mining

Shane Ryan, COO, **Trinity Metals Group**

Marc Van Der Westhuizen, Commercial Manager, **Dwyka Mining Services**

Herbert Patzke, Principal Engineer ECI, **DRA Global**

Mining companies have spent the last decade investing in digital technologies, automation platforms, operational intelligence systems, connectivity infrastructure, and data-driven decision-making tools. Yet despite significant investment, many organisations continue to face challenges moving beyond isolated projects and achieving meaningful operational transformation at scale.

What is holding the industry back? Is the constraint technology, infrastructure, systems integration, engineering readiness, organisational alignment, or simply the realities of operating complex mining environments?

Bringing together operator, engineering, and technology perspectives, this panel discussion examines the practical barriers that continue to slow mining transformation programmes, where operational value is most commonly lost, and what mining companies must do to create the foundations required for intelligent and increasingly autonomous operations. Discussion points will include infrastructure readiness, operational visibility, systems integration, digital twins, spatial intelligence, interoperability, and the realities of scaling digital mining initiatives within live production environments.

18:05

Chairs Closing Remarks

18:15 – 19:30

MiningTech Networking Drinks Reception

Drinks, Canapés & Industry Networking