

Mining

Connected, autonomous, and safer mining operations from pit to plant.

INDUSTRY BRIEF • MINING





Industry Overview

Mining operates in the hardest environments any industry has to digitize — remote, hazardous, and spread across distances that defeat conventional networks.

The shift to connected and autonomous operations is now underway at scale. Safety, productivity, and ESG obligations are converging on the same answer: real-time visibility across the whole operation.

\$31.9B

Projected smart mining market, 2031

11.2% CAGR

Smart mining growth, 2026 to 2031

87%

Private 5G deployments returning value within 12 months



Key Challenges

Harsh conditions, connectivity gaps, and ageing equipment are limiting how safely and productively mines can operate across pit, plant, and fleet.

1

Safety risk that stays stubbornly high

Mining fatality rates run several times the industrial average, with cave-ins, gas, collisions, and heat stress compounded by slow hazard response.

2

Connectivity dead zones

A majority of mines operate in connectivity-challenged locations, where blackouts cripple autonomous vehicles and delay dispatch.

3

Unplanned equipment downtime

Excavators, haul trucks, crushers, and conveyors fail without warning, and reactive maintenance inflates operating cost.

4

No single operational picture

Open pit, underground, processing, and transport each hold part of the picture, and none holds all of it.

5

Rising cyber exposure in OT

Attacks on mining operational technology have escalated sharply as sites connect, with IT breaches reaching OT systems.

6

ESG reporting without reliable data

Emissions, water, and safety disclosure obligations are growing faster than the instrumentation to evidence them.



The Cost of Standing Still

Every year of delay compounds cost, risk, and lost production across the operation.

7×

Mining fatality rate against the industrial average

60–80%

Mines operating in connectivity-challenged locations

\$1,000+

Cost per hour of unplanned equipment downtime

20–40%

Share of operating cost consumed by reactive maintenance



How WinVibe Solves Them

WinVibe operates as the orchestration layer across your entire mining operation, connecting infrastructure, data, and decision-making into one intelligent ecosystem.

1

Decision-Making

Live production and asset intelligence that turns data into faster action.

2

Operations

Unified visibility across pit, plant, fleet, and field teams.

3

Infrastructure

Secure connectivity extended across open-cast, underground, and remote sites.

4

Data

Fragmented production, fleet, and maintenance systems consolidated into one trusted source.

5

Security

Zero-trust protection embedded across OT and IT from day one.

6

Automation

Autonomous operation and predictive maintenance at scale.



Connected Mine & Field Operations

Real-time connectivity across pit, plant, remote sites, and mobile fleets.

1

Private 5G and edge infrastructure

Secure, low-latency coverage across open-cast, underground, and widely distributed environments.

2

Connected workforce and IoT

Wearables, digital PPE, collision avoidance, and real-time situational awareness for every worker.

3

Intelligent site and asset monitoring

Continuous health monitoring across fixed plant, mobile equipment, and remote infrastructure.



Command, Visibility & Security

Unified monitoring and secure control across the whole operation.

1

Centralized NOC and command centre

Production, fleet, safety, and equipment health in one real-time operational view.

2

SOC and zero-trust OT/IT defense

Continuous threat monitoring with protection embedded across operational and IT layers.

3

Real-time operational visibility

One trusted source of truth spanning pit, plant, processing, and transport.



Autonomous & Predictive Intelligence

Moving operators away from hazard and maintenance ahead of failure.

1

Autonomous and remote operations

Vehicles, drills, and drones operated from a control room rather than a cab.

2

AI predictive maintenance

Failures on crushers, conveyors, and haul fleets predicted days before they stop production.

3

Digital twin and simulation

Virtual models of pit, plant, and process used to test changes before committing them.



Transformation & Lifecycle Support

Guiding strategy, delivery, operations, and continuous optimization.

1

Advisory and architecture roadmap

Connectivity, automation, and data strategy with a clear, costed business case.

2

Cloud, edge and hybrid orchestration

Integrated platforms working together across site, data centre, and cloud.

3

Managed operations and optimization

24x7 monitoring, managed operations, and continuous improvement beyond go-live.



Use Cases & Outcomes

SMART MINE COMMAND CENTRE

35%

Improvement in operational efficiency through unified visibility

AUTONOMOUS FLEET OPERATIONS

15%

Higher effective utilization across haul and drill fleets

PREDICTIVE EQUIPMENT MAINTENANCE

40%

Less unplanned downtime on crushers, conveyors, and trucks

WORKER SAFETY MONITORING

50%

Faster emergency response through real-time worker tracking

REMOTE SITE CONNECTIVITY

99.95%

Network availability across connectivity-challenged locations

ENERGY & ESG INTELLIGENCE

25–35%

Energy savings with audit-ready sustainability reporting



Why WinVibe

1

Outcome accountability

Our commercial model is built on measurable results such as safety incident reduction, downtime avoided, and OpEx savings, not delivery milestones.

2

Speed to value

Pilot to scale in months, not years, backed by a proven playbook and prebuilt integrations.

3

Vendor-neutral by design

We are not tied to any single OEM roadmap, giving you long-term flexibility across your technology stack.

4

Security and AI, built in

Zero-trust architecture and AI-native monitoring from day one, never bolted on after the fact.

5

Solution Lifecycle Partnership

One accountable partner across strategy, deployment, operations, and continuous optimization.



LET'S TALK

Let's build the mining operations of tomorrow, today.

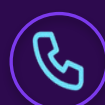
Schedule a strategy session with our Mining team.



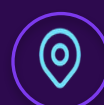
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