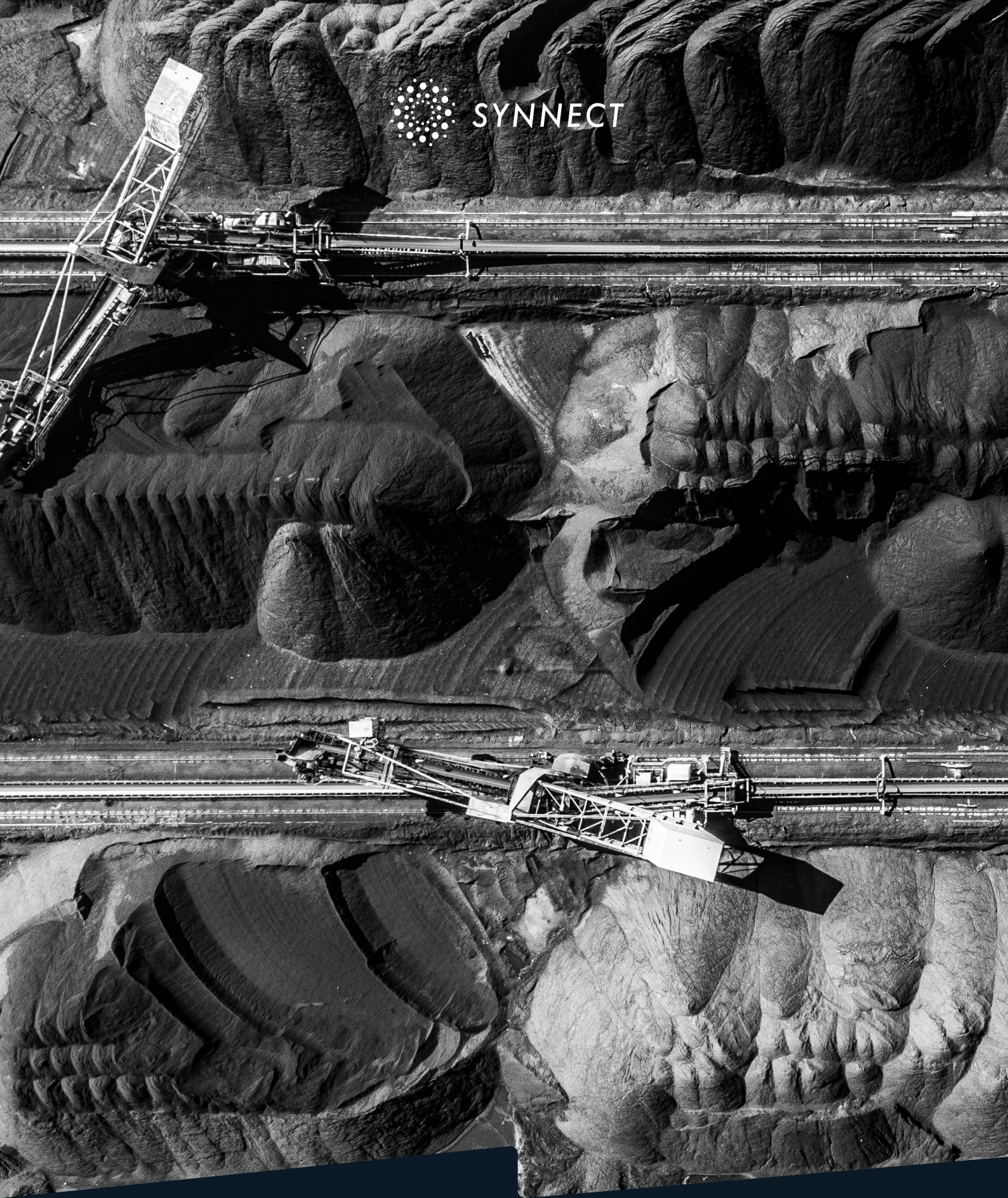


SYNNECT



**TERRAMINE™**

Smarter Operations. Sustainable Growth. Intelligent Insight.



**TerraMine**

# TERRAMINE™

## Smarter Operations. Sustainable Growth. Intelligent Insight.

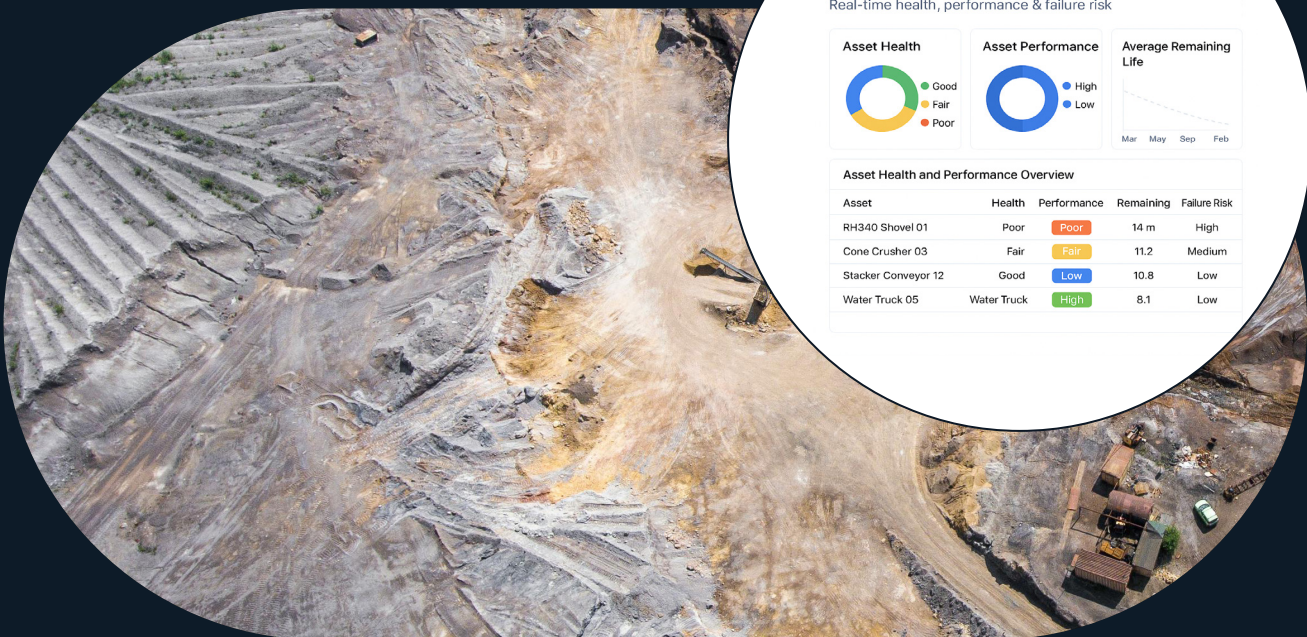
Mining has entered a new era where intelligence defines advantage.

**TerraMine™**, a next-generation mining intelligence suite, enables mining organisations to achieve operational excellence, regulatory compliance, and environmental stewardship through the power of connected data and artificial intelligence.

Engineered to integrate geospatial intelligence, machine learning, and sustainability analytics, TerraMine™ provides a single, transparent view of the mining value chain — from exploration to rehabilitation.

The result is a digital ecosystem that enhances productivity, ensures safety, and drives responsible growth.

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# The Intelligent Mine

## From Physical Operations to Living Intelligence

Modern mining operations operate under increasing pressure — tighter margins, stricter regulation, environmental scrutiny, and rising safety expectations. Traditional systems fragment insight across geology, equipment, production, and compliance.

**TerraMine™** unifies these dimensions into a single intelligence framework. It connects physical mining systems with digital intelligence, transforming operational data into real-time awareness, predictive foresight, and decision-ready insight.

Mining leaders gain clarity across the entire operation — not in hindsight, but as conditions evolve.

This is mining intelligence designed not only to optimise output, but to ensure sustainability, transparency, and long-term value.

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### The Digital Mine Twin

A virtual representation of the mining operation

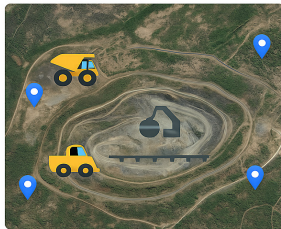
#### Asset Status

Operating	8
Idle	2
Inactive	1

#### Production Overview

Material Mined	52.3 kt
Ore Grade	2.5%

#### Asset Health and Performance Overview



# Predictive & Digital Mine Intelligence

## Predictive Asset Intelligence

**TerraMine™** transforms traditional asset management into a predictive science. Through advanced machine learning models and real-time sensor integration, the platform continuously monitors the health of critical machinery — including shovels, crushers, conveyors, drills, and haul fleets.

Early signs of stress, inefficiency, or failure are detected before breakdowns occur, reducing downtime and extending asset lifecycles.

### Capabilities include:

- Cost intelligence across supplies and equipment
- Downtime reduction through anomaly detection and root-cause analysis
- Closed-loop asset management through ERP integration

## The Digital Mine Twin

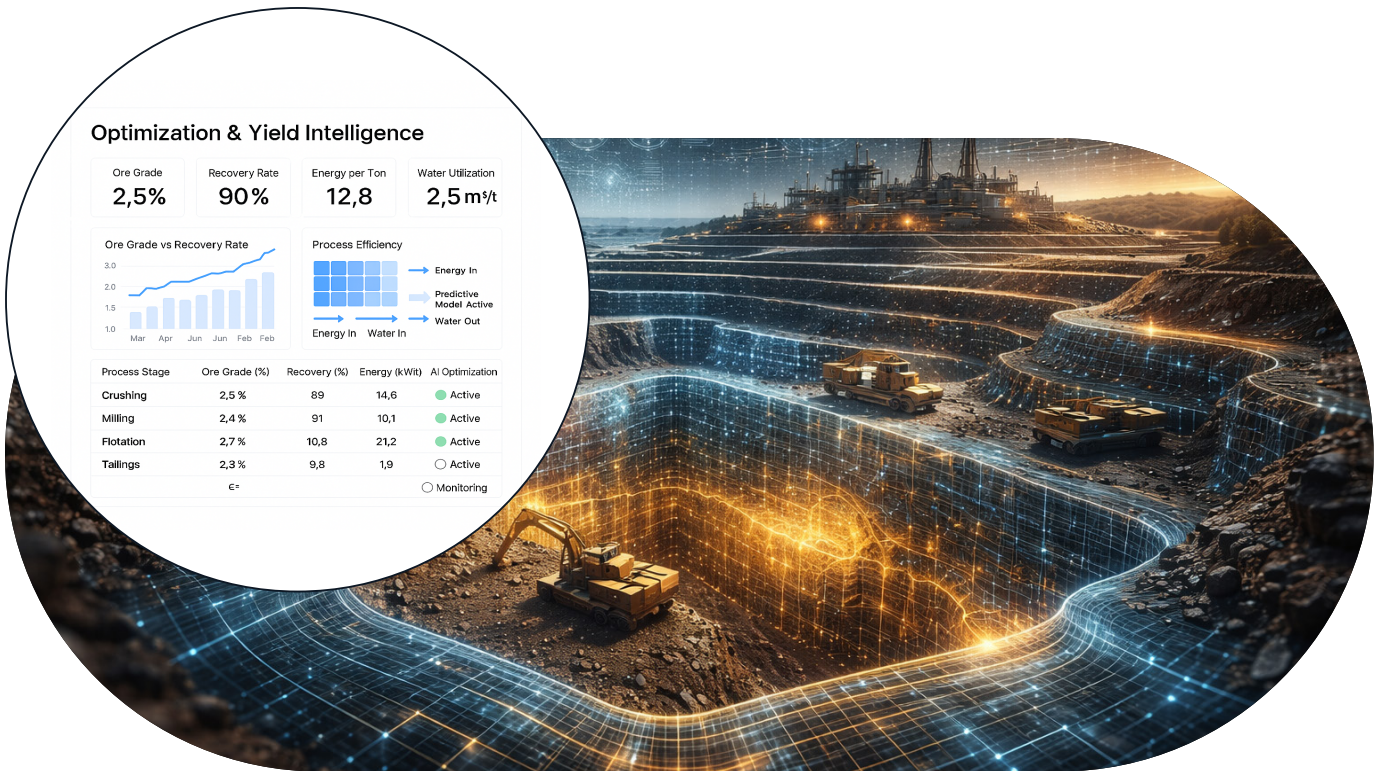
At the core of **TerraMine™** lies its Digital Mine Twin — a living, three-dimensional model of the mining environment.

By combining drone imaging, IoT sensor data, geological models, and production metrics, the platform delivers real-time visibility of pit conditions, material flow, and equipment activity.

### Capabilities include:

- Unified visualisation across geotechnical, operational, and environmental parameters
- Dynamic scenario modelling for blast design, slope management, and material flow
- Virtual collaboration for multi-site and multi-team coordination

This shared visual context aligns planners, engineers, and executives around a single operational truth.



# Optimisation, ESG & Operational Intelligence

## Optimisation & Yield Intelligence

Mining profitability depends on precision. **TerraMine™** employs AI-driven ore-body modelling and process optimisation algorithms to minimise waste, reduce energy consumption, and improve recovery rates.

The platform continuously balances production targets with sustainability objectives to ensure efficiency is achieved responsibly.

### Capabilities include:

- Ore-grade prediction for improved blending strategies
- Energy and water utilisation analytics
- Throughput performance management integrated with processing systems

## ESG & Compliance Intelligence

Regulatory transparency has become a cornerstone of modern mining. **TerraMine™** simplifies compliance by automating data collection and generating audit-ready sustainability and regulatory reports.

### Capabilities include:

- Automated carbon accounting and Scope 1–3 emissions tracking
- Satellite-linked land rehabilitation and biodiversity monitoring
- Digital ESG audit trails with exportable regulatory reports

This enables mining organisations to meet regulatory requirements while strengthening trust with regulators, investors, and communities.

## AI-Powered Decision Intelligence

**TerraMine™** converts complex, multi-dimensional mining data into clear, actionable insight. Using deep learning, predictive modelling, and cognitive automation, the platform identifies risks, highlights inefficiencies, and recommends improvements across production, logistics, and sustainability.

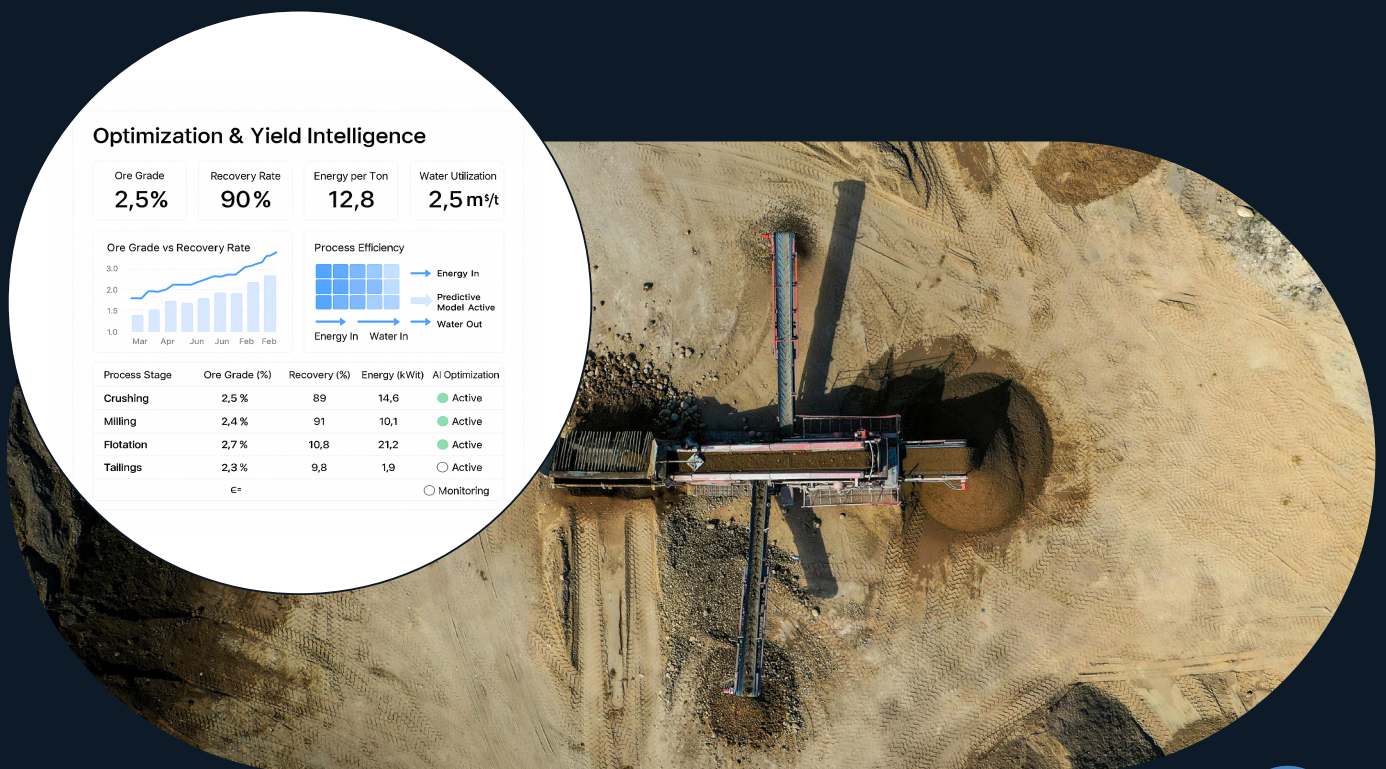
### Capabilities include:

- Automated insight generation across operational data streams
- Predictive analytics across production, logistics, and ESG functions
- Decision support for planning, cost control, and sustainability alignment

# Platform Capabilities & Operational Framework

## Platform & Framework

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**TerraMine™** is built on a modular, cloud-ready architecture designed for interoperability, security, and scale. It integrates seamlessly with mine management systems, IoT networks, and enterprise platforms.

**Core capability pillars include:**

**Predictive Maintenance**

Continuous diagnostics that reduce downtime, extend asset lifecycles, and optimise maintenance budgets.

**Supply Chain & Logistics Visibility**

Real-time tracking of ore movement, stockpile management, and fleet utilisation.

**Environmental Intelligence**

Continuous monitoring of water, air, and soil conditions to minimise ecological impact.

**Energy & Resource Optimisation**

Intelligent tracking of fuel, energy, and water consumption.

**Safety Intelligence**

Real-time alerts on slope stability, seismic activity, and air quality to protect the workforce.

**Regulatory Compliance & ESG Reporting**

Automated reporting aligned with South African, IFC, and ISO frameworks.

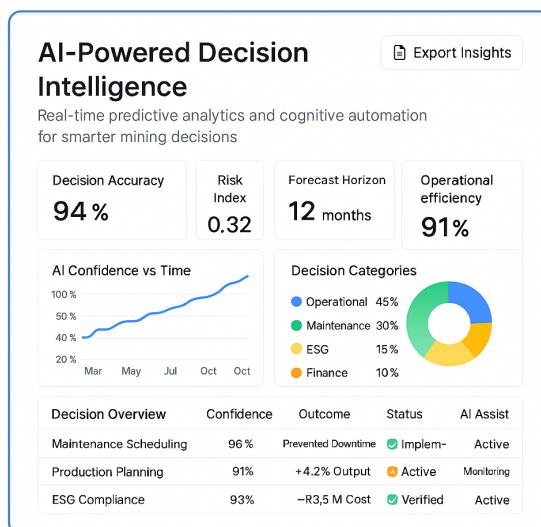
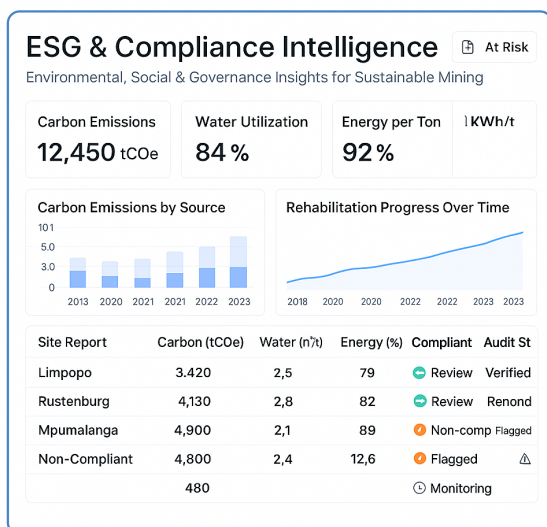
**Operational Planning & Scheduling**

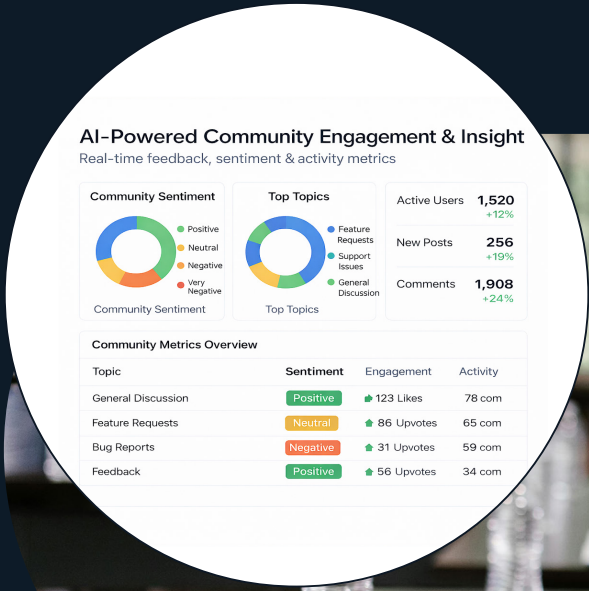
Simulation of pit progression, fleet movement, and production targets using digital-twin data.

**Community & Stakeholder Transparency**

Accessible dashboards demonstrating environmental performance and socio-economic impact.

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# Social Performance Intelligence

## From Social Obligation to Social Intelligence

**Social performance remains one of the most complex and under-digitised challenges in mining.**

Communities are dynamic. Demographics change. Expectations evolve. Yet most mining operations rely on fragmented records, manual engagement processes, and incomplete social data — increasing the risk of conflict, delays, and reputational damage.

TerraMine™ introduces Social Performance Intelligence as a core capability, not a peripheral function.

## A Living Social Intelligence Hub

At the heart of TerraMine's social performance capability is a continuously updated social intelligence layer that provides mines with a clear, verified understanding of the communities surrounding their operations.

### **This includes:**

- Structured demographic profiles across villages and settlements
- Household-level population segmentation
- Geographic mapping of community zones and impact areas
- Socio-economic indicators relevant to mine operations

Rather than static reports, this intelligence evolves as community conditions change, ensuring engagement strategies remain informed and relevant.

## Verified Identity & Community Data

### **Trust Built on Accuracy.**

**TerraMine™** integrates with live, authorised data sources and APIs to enhance the integrity of community information.

### **Through secure integrations, mines can:**

- Verify identities and addresses
- Support background and eligibility checks where required
- Maintain accurate beneficiary and stakeholder records
- Reduce duplication, fraud, and administrative risk

This enables fair, transparent engagement — particularly in employment, procurement, and community development initiatives.

## AI-Powered Community Engagement & Insight

### **Listening at Scale.**

Social performance is not only about data collection — it is about understanding sentiment, patterns, and emerging risks.

### **Within TerraMine™, conversational AI and cognitive analytics (including Cognify based capabilities) enable:**

- Structured analysis of community feedback and interactions
- Identification of recurring concerns and sentiment trends
- Early warning signals for social tension or dissatisfaction
- Decision-ready insight for social performance teams

This transforms community engagement from reactive issue handling into proactive social intelligence.

# Digital Grievance Management & Resolution

**Transparent. Trackable. Accountable.**

TerraMine™ includes a fully integrated digital grievance capability, enabling communities to raise concerns through accessible digital channels.

**The platform allows:**

- Direct submission of grievances by community members
- Secure tracking of cases from submission to resolution
- Defined response workflows and accountability
- Transparent reporting for regulators and stakeholders

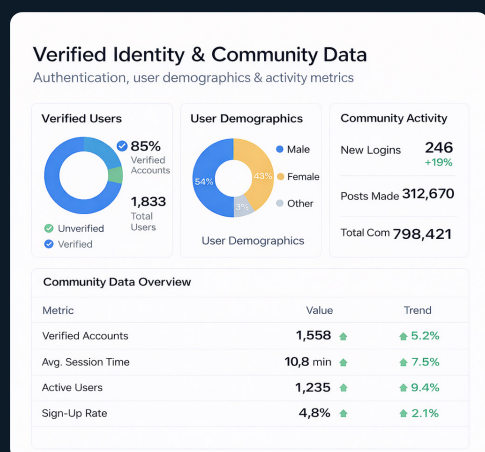
Both the mine and the community gain visibility into how issues are addressed — strengthening trust, reducing escalation, and demonstrating responsible governance.

## Strengthening the Social Licence to Operate

By integrating social intelligence, verified data, AI-driven insight, and grievance resolution into a single platform, TerraMine™ enables mining organisations to:

- Engage communities with confidence and credibility
- Reduce social risk and operational disruption
- Demonstrate measurable social responsibility
- Align community development with long-term sustainability

Social Performance Intelligence ensures the mine is not only operationally efficient — but socially embedded, transparent, and trusted.



# Who TerraMine™ Is For

**TerraMine™** is built for modern mining organisations that require shared, trusted intelligence across all levels of the business. Rather than serving isolated teams or functions, it provides a single source of truth that supports leadership, operations, ESG, technical planning, and community engagement — all within one integrated platform.



## Executive & Board Leadership

TerraMine™ gives executives and boards real-time visibility into operational performance, ESG exposure, safety, social risk, and long-term sustainability. This enables forward-looking, evidence-based decision-making, strengthening governance, investor confidence, and strategic oversight.



## Operations & Mine Management

For operational leaders, TerraMine™ unifies production, asset, logistics, and environmental data into a coordinated operational view. This supports faster response to disruptions, predictive maintenance, and aligned planning across the mine — improving productivity while maintaining safety and cost efficiency.



## ESG, Sustainability & Compliance Teams

TerraMine™ embeds ESG directly into daily operations through continuous monitoring, audit-ready reporting, and traceable digital records. Compliance becomes proactive and ongoing, reducing regulatory, reputational, and environmental risk.



## Planning, Engineering & Technical Teams

Planners and engineers gain advanced analytics and digital-twin capabilities to simulate mine scenarios, optimise production, and test decisions before execution. This improves planning accuracy and aligns technical decisions with operational and sustainability objectives.

# Why Terramine™

## A Vision for the Future

As mining evolves toward digitalisation and decarbonisation, TerraMine™ provides a foundation for intelligent, transparent, and sustainable operations.

It embodies a vision where resource extraction is optimised through intelligence, governed by responsibility, and aligned with long-term prosperity.

- Holistic Intelligence – geology, operations, safety, and sustainability unified
- Scalable by Design – from single sites to multi-mine operations
- Secure and Cloud-Ready
- Sustainability at the Core
- Local Insight, Global Standards

TerraMine™ ensures that Africa's resource wealth contributes to economic growth while preserving ecosystems and communities for future generations.



## THE FUTURE OF MINING

Smart. Automated. Efficient.



[enquiries@synnect.co.za](mailto:enquiries@synnect.co.za)



<https://www.synnect.africa>

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