airth.io

airth CORE mOS™

One Operating System.
One Unified Mine.

Presenter

Erman Koc

Vision

Self-Learning, Improving, Sustainable

Mining Operations with **AI**

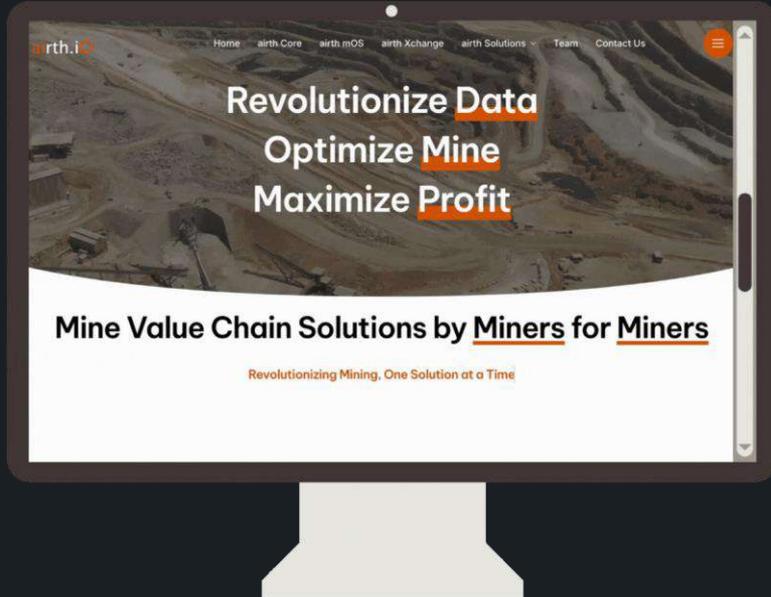Real-Time **D**ecision **I**ntelligence, and Automation

Self-Learning

Improving

Sustainable

airth.io with numbers

Revolutionize Data
Optimize Mine
Maximize Profit

Mine Value Chain Solutions by Miners for Miners

Revolutionizing Mining, One Solution at a Time

1
Patent pending Industry Agnostic Enterprise Platform

20+
Mine Solutions

500+
Years of Mining Experience

30+
Team Members

$4M
Raised

Why Now? The Challenges Have Changed

Mining Requires a New Operating Model

Data Is Overwhelming

Mines generate terabytes of sensor data daily, but lack the infrastructure to turn it into actionable insight.

Sustainability & Compliance

ESG mandates are no longer optional. Regulators and investors demand real-time transparency and accountability.

The Future Thinks Faster

Commodity volatility and operational complexity require real-time decision-making, not monthly reports.

Safety Through Intelligence

Proactive safety requires predictive analytics, not reactive incident response after the fact.

The Industry Must Shift

React
Yesterday

→

Predict
Today

→

Prescribe
Tomorrow

airth Core mOS™ Provides the Orchestration Layer

One Backbone Orchestrating the Entire Mine

Interoperability

Connects Mine Planning, FMS systems (Wenco, Komatsu, CAT), Mineral Processing data sources without rip-and-replace.

Predictive Intelligence

Transforms raw data into actionable foresight. AI models forecast failures and bottlenecks before they occur.

Agentic Autonomy

Moves from decision support to autonomous action. Intelligent agents optimize dispatch with human oversight.

ESG Embedded by Design

Sustainability is an operational variable. Real-time monitoring influences dispatch and planning logic.

Mining Operating System

| Data Sources | > | mOS Core | > | Mining Apps |

2.5 Years of Deep Collaboration with FMS Vendors

Demonstrates Proven Integration

Strategic Collaboration

Working directly with Wenco leadership since 2023 to build next-gen mining intelligence for the Hitachi ecosystem.

Native Integration

Applications built specifically for Wenco data models and APIs, ensuring seamless interoperability without data translation layers.

Empowering Customer Success

Deployed airth Co-pilot to Wenco's CS team, enabling faster support and deeper technical insights for customers.

Joint Industry Leadership

Co-presented at Global Mining Guidelines event in Turkey, showcasing our shared vision for unified operations.

W Wenco®

Getting More Out of Your Mine

Strategic Partnership

Applications Ready for Wenco Systems

Predictive Queue Time

AI-driven haul network optimization to minimize idle time and maximize material flow.

Predictive Downtime

Machine learning models that anticipate equipment failures, reducing unplanned stoppages by 20%.

AI Powered Dynamic Dispatch

Multi-object optimization algorithms that balance production, fuel, and grade requirements in real-time throughout mine value chain.

Integrated Intelligence

Across the Entire Mine Value Chain

Operational Excellence

*Stable Operations, Less Downtime
Higher Utilization*

- Predictive Maintenance
- Predictive Downtime Analysis
- Predictive Queue Time
- Dynamic Dispatch (Agentic AI)
- Smart Mine Support Systems

Planning & Finance

From Static Plans to Dynamic Value Forecasting

- Mine Plan & Scheduling
- Mine Foresight (Predictive Planning)
- Financial Modeling
- Heap Leach Recovery Modeling

Decision Support

One Version of Truth for Every Stakeholder

- Digital Twin (5D) and 3D CAD Platform
- Co-Pilot & Decision Intelligence System
- Prescriptive Intelligence

All Applications Run on a Single, Unified Operating System: airth Core mOS™

Agentic **AI** Transform Dispatch

From Rule-Based to Adaptive Intelligence

Today
Rule-Based Dispatch

Static Rules & Predefined Routes
Logic is programmed in advance. Cannot adapt to real-time variations in road or grade.

Manual Overrides
Dispatchers must intervene when conditions change, causing delays and inconsistency.

Reactive Optimization
Reacts to bottlenecks after they occur. Lacks predictive capability.

Tomorrow
Agentic AI Dispatch

Continuous Observation
Agents monitor live data streams (queue, grade, health) to build a real-time state.

Real-Time Adaptation
Decisions adapt instantly to changing conditions. Reroutes traffic before congestion occurs.

Autonomous Execution
Executes decisions automatically with human-in-the-loop oversight for safety.

Built on airth Core mOS™

Capstone Copper Validates 11% Ore Prediction Improvement

Live Forecast Modeling vs. Traditional Resource Models

The Challenge

Delayed blasthole assay results force planners to rely on interpolated resource models that lack local resolution, leading to ore-waste misclassification and lost revenue.
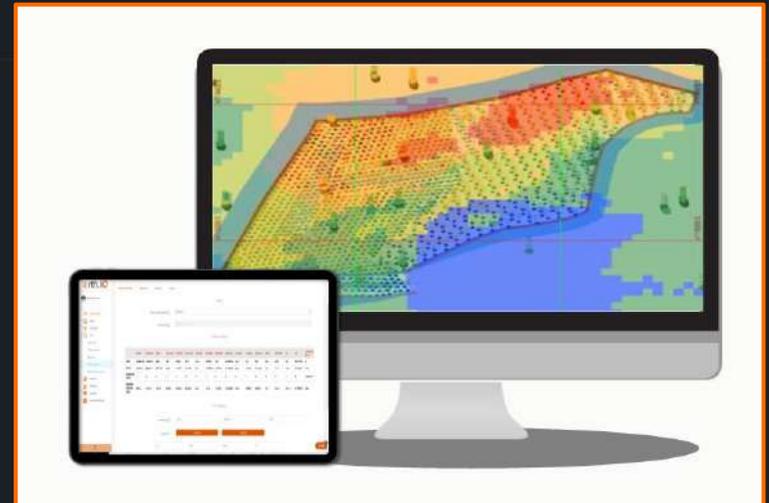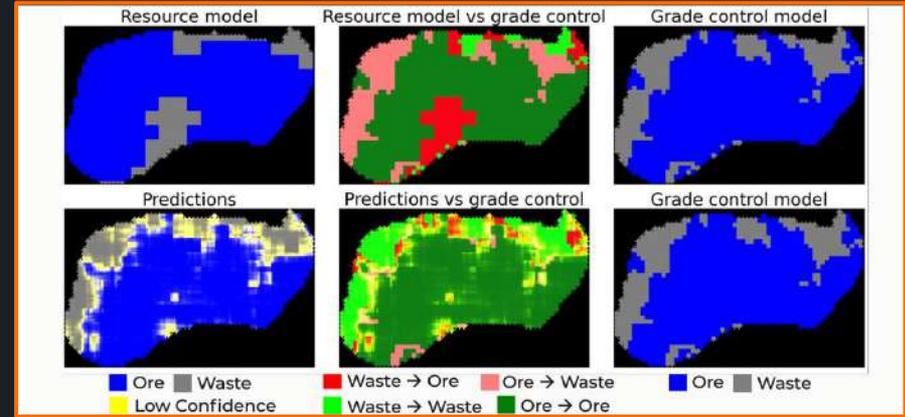
The Solution: Mine Foresight

Combines geostatistical methods (Kriging) with AI-driven gradient-boosted decision trees. Continuously updates predictions with live production data.

Key Capabilities

✓ **Live Forecast Modeling:** Updates with every blast.

✓ **Dynamic Metal Accounting:** Real-time value tracking.

~11% **Precision Improvement**
Actual Copper Tonnage & Grade

Resource model | Resource model vs grade control | Grade control model
Predictions | Predictions vs grade control | Grade control model

■ Ore ■ Waste
■ Low Confidence
■ Waste → Ore ■ Ore → Waste
■ Waste → Waste ■ Ore → Ore
■ Ore ■ Waste

Water Truck Management Reduces Water Waste by 46%

Flagship Case Study: Intelligent Dust Suppression

The Challenge

Traditional operations rely on static routes and driver intuition, leading to:

- ✕ Chronic overwatering (mud, safety hazards)
- ✕ Underwatering (dust violations)
- ✕ Wasted fuel and water resources

The Solution

airth.io transforms watering into an intelligent system:

- ✓ **Predictive ESG:** Forecasts dust & assigns water by zone.
- ✓ **Route Optimization:** AI designs efficient paths based on traffic.
- ✓ **Automation:** Geofencing controls spray volume automatically.

46%	**2.2M**	**25%**	**Improved Compliance**
Water Waste Reduction	Gallons Saved	Fuel Reduction	
Eliminated chronic overwatering	Single truck in 3 months	Optimized routing & fewer trips	Auditable records & safer roads

Smart Mine Support Expands Semi-Autonomous Capabilities

Beyond Water Trucks: A Comprehensive Ecosystem

Strategic Partnerships: Open Loop Energy & 3DP/Epiroc

Collaborating with leaders in electrification and IoT to develop turnkey Smart Mine Support solutions. Combining airth.io's software platform with best-in-class hardware and sensor technology.

Water Truck

Already Deployed. 46% waste reduction & improved compliance.

Grader

Intelligent road maintenance & surface optimization.

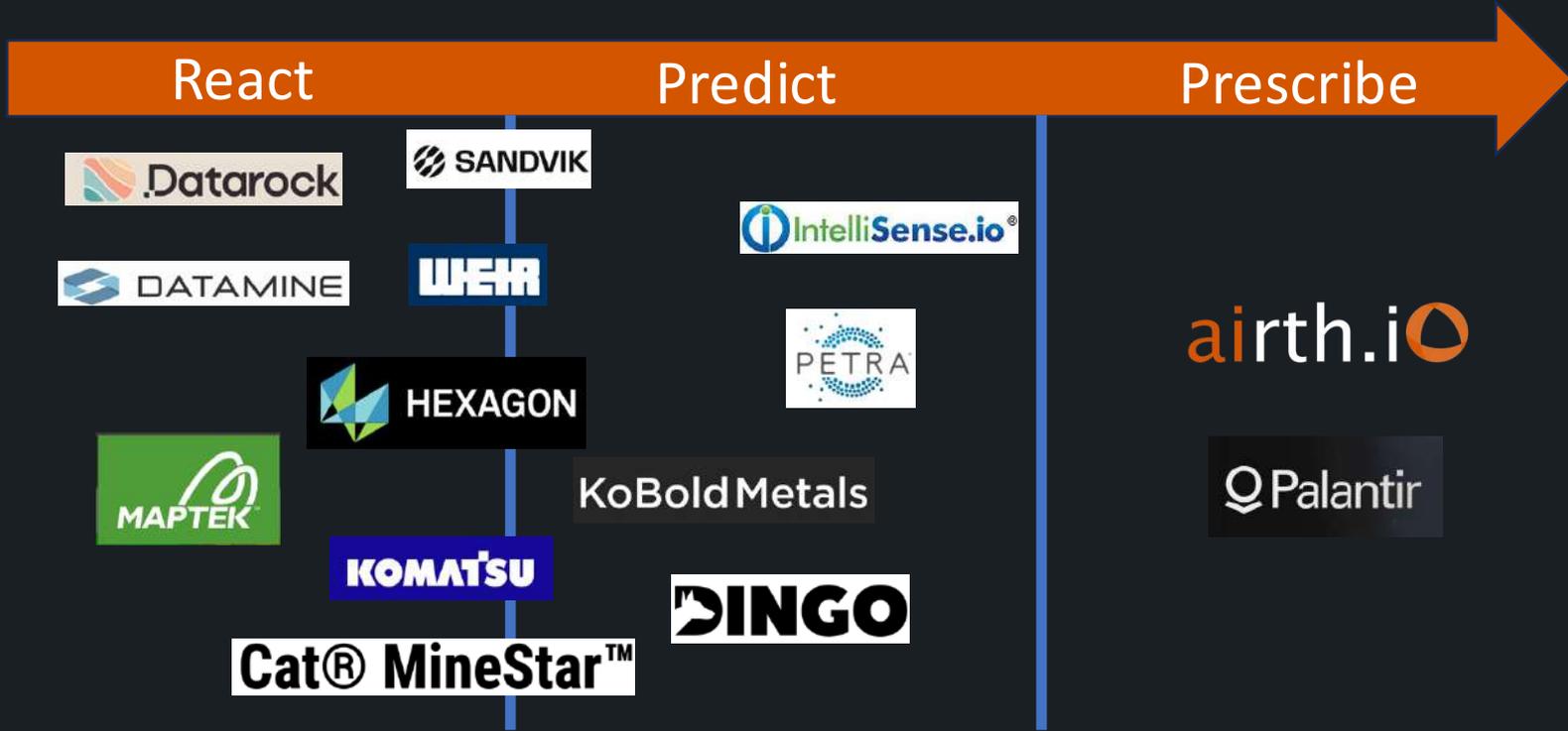### Lube Truck

Predictive servicing & route optimization.

Fuel Truck

Dynamic refueling based on equipment needs.

Loader

AI-driven material handling & positioning.

Real-Time Telemetry   Predictive Maintenance   AI-Driven Routing   Geofencing Control   ESG Monitoring

Why airth.io ?

React   Predict   Prescribe

Traction & Validation

ROI Scales Through Modular Adoption

Market Impact & Scalable Value Creation

10–20%
Productivity Improvement
Optimized dispatch & reduced downtime increase throughput without new assets.

5–15%
Cost Reduction
Lower fuel consumption, maintenance costs, and operational inefficiencies.

30–50%
Resource Waste Reduction
Significant savings in water, energy, and consumables via ESG apps.

Weeks
Time to First Value
Modular deployment delivers immediate impact vs. multi-year implementations.

Why ROI Scales with airth Core mOS™

One Platform
Multiple apps share infrastructure

→

Shared Intelligence
Data & AI models reused across apps

→

Compounding Value
System gets smarter with every addition