

Every layer of the plant. One intelligence.

Agentic, multi-layer AI that runs every circuit of the plant and reconciles them from one control room.

COPPER · GOLD · LITHIUM · PHOSPHATE · RARE EARTH · INDUSTRIAL MINERALS

30%

projected copper supply shortfall by 2035,
on declining ore grades

IEA, CRITICAL MINERALS OUTLOOK 2025

~70%

of concentrator OPEX sits in
comminution alone

APPLIED SCIENCES 15(3):1602, 2025

\$130K

lost per hour of unplanned downtime
on a high-production asset

INDUSTRY BENCHMARK, 2025

10

domain layers managed independently,
reconciled as one

PREAUR ARCHITECTURE

THE CHALLENGE

Comminution, separation, water, reagents, energy, maintenance and environment each answer to a different team with a different target. Raise dosing for recovery and it lands in someone else's budget.

Feed changes hour to hour: hardness, mineralogy, clay, grade. Setpoints are chosen from shift experience and corrected after the assay, not before.

Existing tools are partial. Vendors optimise their own equipment. Maintenance platforms never touch the process; process platforms never touch the permit.

THE PREAUR SOLUTION

Ten domain layers. Each is a specialised agent with its own models, its own KPIs and its own conservation limits. Buy one; add the next when it has paid for itself.

A deterministic engine floor. Every recommendation must close mass, water and energy balance, respect the permit in force, and carry a cost. If it does not close, it does not ship.

One supervisor. Above the circuits, a single layer holds the plant as a whole and resolves the conflicts between the layers — and records why.

THE ARCHITECTURE

FIVE TIERS · ONE EVIDENCE CHAIN · ONE CONTROL ROOM

	SUPERVISOR	One control room. Cross-layer reasoning, conflict resolution, scenario simulation, one plant picture.
	ENGINE FLOOR	Mass balance, water balance, energy balance, physical limits, regulatory register, cost.
	DOMAIN LAYERS	Ten specialised agents, each analysed and managed in its own right.
	CONTEXT	Unified namespace, asset model, data-quality gate. A model never runs on a signal that failed the gate.
	SIGNAL	IoT and field sensors, SCADA, PLC and DCS, historian, online analysers, LIMS, CMMS, ERP.

SENSE → INTEGRATE → LEARN → PREDICT → OPTIMISE → DECIDE

THE TEN DOMAIN LAYERS

EACH SOLD, RUN AND MEASURED ON ITS OWN · RECONCILED AS ONE

L1 Comminution & classification	L2 Separation & concentration	L3 Dewatering & tailings	L4 Water circuit & balance	L5 Reagents & consumables
L6 Energy & utilities	L7 Asset health & reliability	L8 Environment & emissions	L9 Health, safety & environment	L10 Resource & material

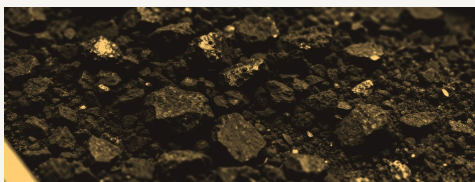
THE EVIDENCE CHAIN

SIGNED · TIMESTAMPED · EXPORTABLE

Every recommendation carries the sensors it used, the model that produced it, the engine checks it passed, the constraint that limited it, and what it is worth. The record that tells an operator why the dosing changed is the record that shows a regulator and a financier how the plant performed. **One system, two audiences.**

ADVISORY	Monitors, predicts, recommends. Writes nothing.
SUPERVISORY	Setpoints go to the operator for approval.
CLOSED LOOP	Writes inside a signed envelope, with automatic fallback.

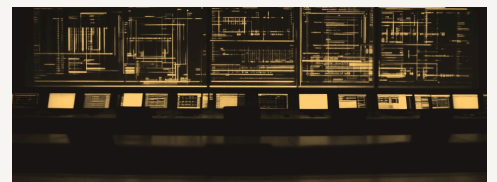
THE AI PROPOSES. THE ENGINES PROVE IT.



01 THE FEED · ORE VARIABILITY



02 THE CIRCUIT · RECOVERY



03 THE DECISION · ONE ROOM

WHO IT IS FOR Plants and organisations bringing advanced learning models and AI agents into an operation that is already running — so the management team and the managers on the ground hold the tools to run it better.

WHAT IT GIVES OPERATIONAL · ORGANISATIONAL · SAFETY · FINANCIAL · SOCIAL

Every layer of the plant. **One intelligence.**



Agentic AI · Mineral Processing · Water · Environment · HSE

Dr. Ronny Banker CEO

PhD chemistry, MBA; 25+ years in mining, minerals, water and cleantech.

Idor Ovitz CTO

AI and agentic-systems architect; leads the platform and data engineering.

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Decision support for plant operations. The operator decides.