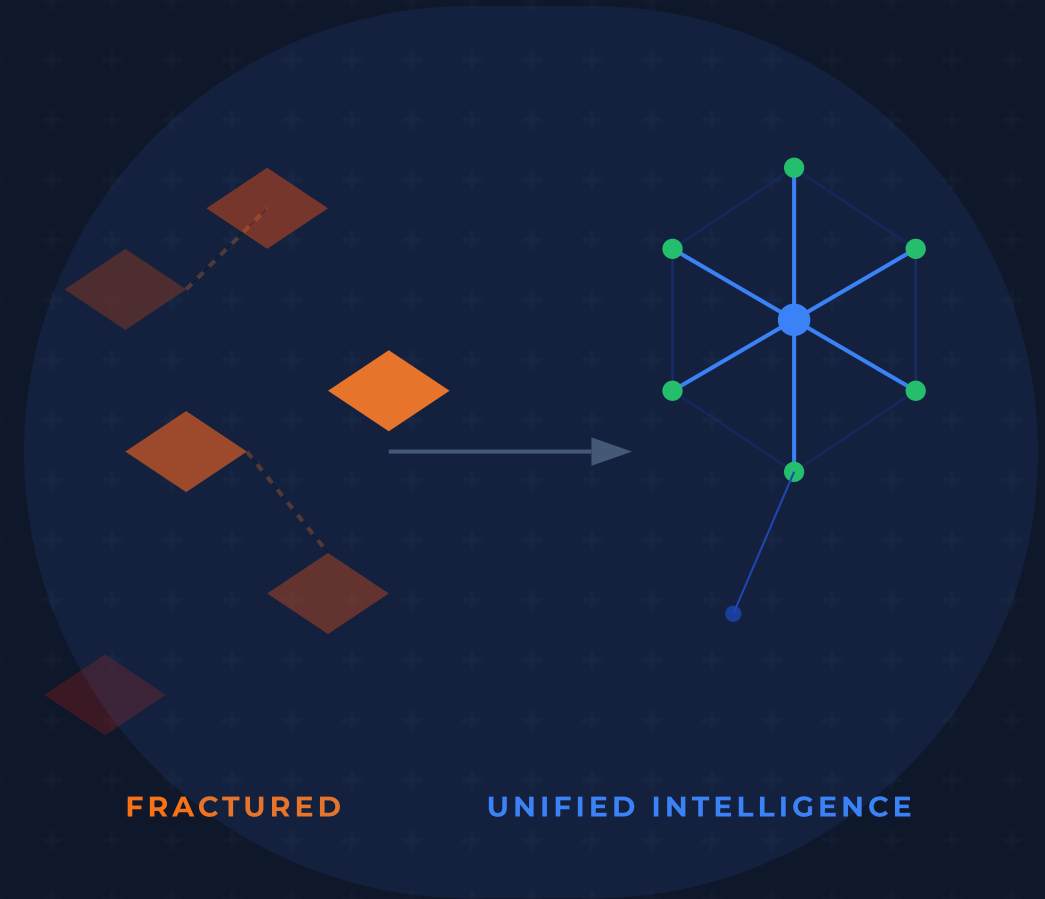# Vyomchara

An Integrated **AI Platform** to Modernize India's **Mining Sector**

> "India's mining sector is the bedrock of our economy, but it's built on a fractured digital foundation. We are **Vyomchara**, and we are building the *unified intelligence layer* for the mine of the future."

FRACTURED

UNIFIED INTELLIGENCE

IIT KANPUR FOUNDERS

Harsh Raj
Founder, MD

Somu Prajapati
Co-Founder, CTO

Sahil Dhull
Head of AI

PRESENTED ON
January 20, 2026

A Trillion-Dollar Industry Running on Disconnected, Obsolete Technology

The core issue is a lack of integrated, end-to-end platforms, creating massive inefficiencies across the mining value chain.

🗄️ Data Silos

Geologists, engineers, and operators don't share a single source of truth, leading to misinformed decisions.

💵 High Costs

Expensive foreign technology is unfeasible for most Indian firms, leaving mid-tier miners behind.

⛑️ Safety & Compliance

Manual processes lead to critical safety risks and reporting failures, risking shutdowns.

CURRENT STATE: FRACTURED WORKFLOW

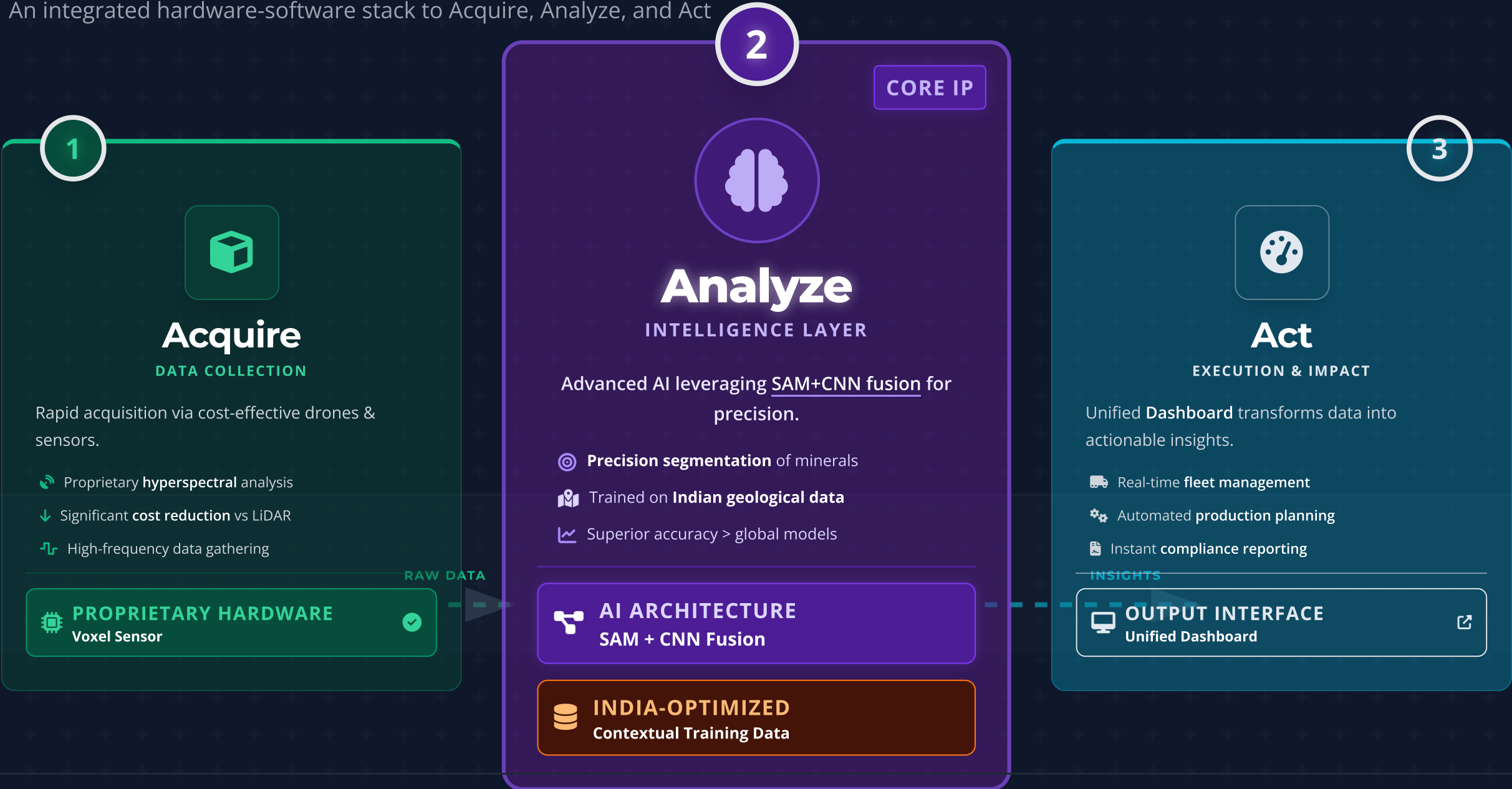| OFFLINE		SILOED		MANUAL
Geology Exploration Data	NO SYNC	**Operations** Extraction Data	DELAY	**Reporting** Compliance

⚠️ Result: 40% Operational Inefficiency & Increased Risk

The Vyomchara Platform: Mining 4.0

An integrated hardware-software stack to Acquire, Analyze, and Act

2

CORE IP

1

Acquire

DATA COLLECTION

Rapid acquisition via cost-effective drones & sensors.

↻ Proprietary **hyperspectral** analysis

↓ Significant **cost reduction** vs LiDAR

⎍ High-frequency data gathering

RAW DATA

PROPRIETARY HARDWARE
Voxel Sensor ✓

Analyze

INTELLIGENCE LAYER

Advanced AI leveraging SAM+CNN fusion for precision.

◎ **Precision segmentation** of minerals

⚑ Trained on **Indian geological data**

📈 Superior accuracy > global models

AI ARCHITECTURE
SAM + CNN Fusion

INDIA-OPTIMIZED
Contextual Training Data

3

Act

EXECUTION & IMPACT

Unified **Dashboard** transforms data into actionable insights.

🚚 Real-time **fleet management**

⚙ Automated **production planning**

📄 Instant **compliance reporting**

INSIGHTS

OUTPUT INTERFACE ⧉
Unified Dashboard

● End-to-End Integration   ⚡ Real-time Processing   ◔ Decision Support   BHAR - 777023

Tapping into India's Massive Mining Potential

TOTAL AVAILABLE MARKET (TAM)

Source: Industry Reports 2025

$285 B

India Metals & Mining Industry 2024

🔑 KEY OPPORTUNITY

"No dominant Indian leader in integrated mining technology."

Incumbents like Hexagon and Reactore are too expensive and monolithic for the average Indian firm.

TARGET STRATEGY

Phase 1
Private Contractors
Initial Entry

Phase 2
B2G Tenders
Scale (Coal India, OMC)

Market Segmentation

Serviceable Addressable Market (SAM)

TARGET SEGMENTS
TARGET SEGMENTS
TARGET SEGMENTS
TARGET SEGMENTS

VYOMCHARA
Entry Point

SERVICEABLE MARKET

$42.75 B
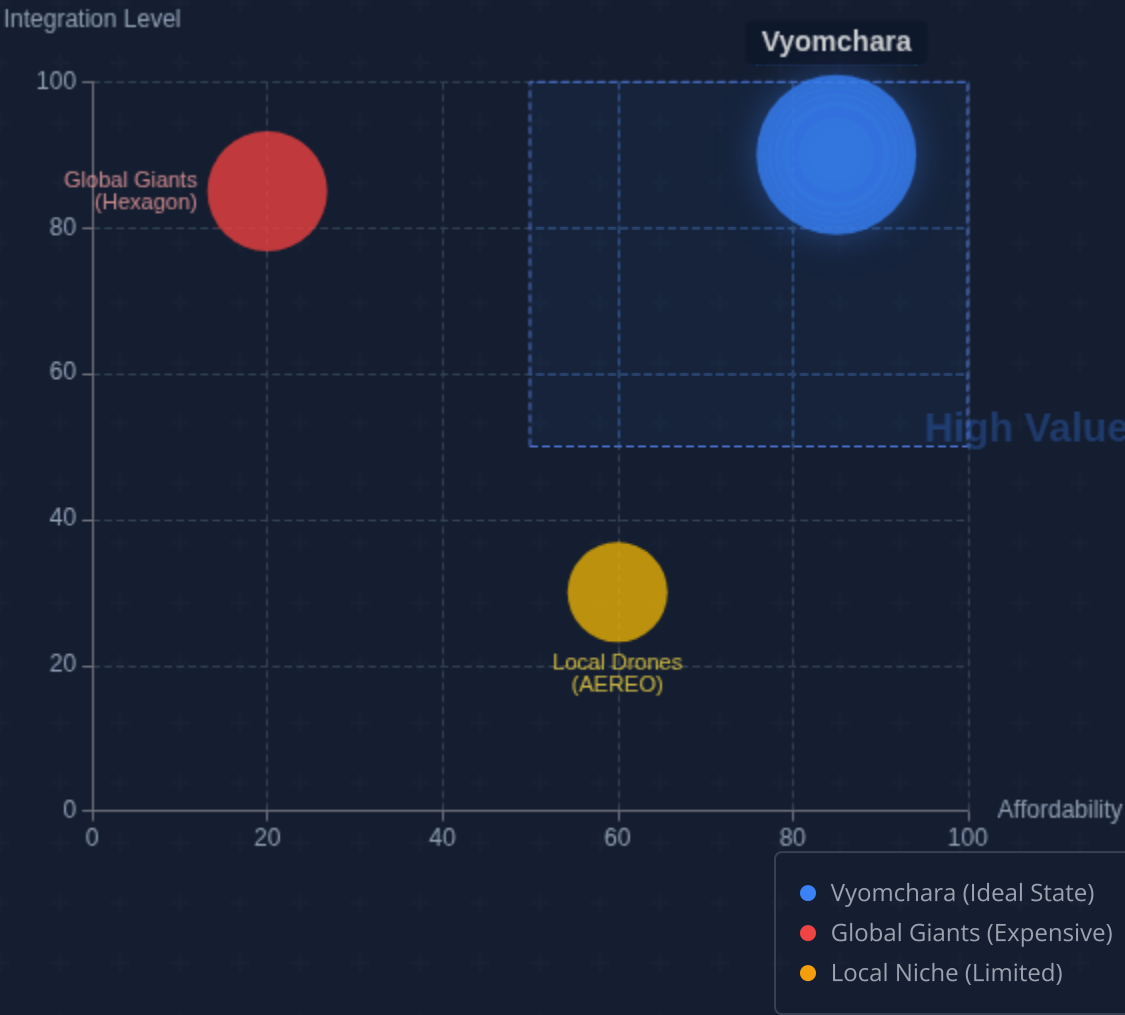
15% tech-modernization segment of total output value

TAM $285B

Rs
2.5%

🏆
#2

📈
11.7%

Our Unfair Advantage: Integration & Affordability

Competitive Landscape

Integration Level

Vyomchara

Global Giants
(Hexagon)

High Value

Local Drones
(AEREO)

Affordability

- Vyomchara (Ideal State)
- Global Giants (Expensive)
- Local Niche (Limited)

Why We Win

System Integration
Seamless hardware-software stack. Hard to replicate end-to-end flow.

Proprietary AI
SAM+CNN models trained specifically on **Indian geological data**.

Cost Advantage
"Voxel" sensor + affordable drones = **1/5th the cost** of incumbents.

THE COMPETITION

Hexagon / Reactore
Powerful but monolithic & expensive. Not tailored for India.

AEREO
Good drone services, but lacks full-stack AI & analytics platform.

Analysis based on current market offerings and pilot data

BHAR-777023

A Dual-Pronged Strategy for Market Capture

🪙 Revenue Model

B2B: Private Sector
MID-TIER MINING CONTRACTORS

- ✓ **Project Consultancy:** Initial digitization & hardware setup fees.
- ✓ **Recurring Licensing:** SaaS fees for Platform & AI Analytics access.

B2G: Government
PSUS (COAL INDIA, OMC)

- ✓ **Large Scale Tenders:** Multi-year contracts for mine modernization.
- ✓ **Enterprise Volume:** High-volume data processing & compliance reporting.

Go-to-Market Strategy

1 Pilot Projects
Validate ROI & Tech

🚩 2-3 Paid Pilots

2 Partnerships
Expand Reach & Capabilities

🤝 Drone & HW Vendors

3 Scale
Market Dominance

🚀 B2G Contracts

Strategy focused on low-CAC entry via pilots leading to high-LTV government contracts

The Right Team to **Execute** this Vision

🚀 Current Traction

🔲 Prototype Dev
"Voxel" sensor prototype in advanced development.

💬 Expert Validation
Active discussions with professors & ministry experts.

🤝 Client Interest
Initial pilot conversations for Q2 deployment.

🏛️
INCUBATED AT
IIT KANPUR

👥 Leadership Team

All Founders from IIT Kanpur

Harsh Raj
FOUNDER, MD
Business Operations & Strategy

🎯 Business research & expansion strategy

📣 Marketing & signal leads management

💼 Overall business operations

IITK

Somu Prajapati
CO-FOUNDER, CTO
Tech Business & Operations

💻 Tech solution pitching & client meetings

🔲 Manages all Tech, AI & IoT stack

⚙️ Technical operations oversight

IITK

Sahil Dhull
HEAD OF AI DIVISION
Artificial Intelligence Lead

🔳 Deep Learning model architecture

👁️ Computer Vision implementation

🤖 AI model optimization & deployment

IITK

Advisors include domain experts from IITs and Mining Ministry

BHAR-777023

Funding & Milestones: Momentum & Scale

TRACTION SECURED
₹2.4 Cr Raised

🛡 DE-RISKED INVESTMENT

WORK ORDERS FROM:

OMC
Orissa Mining Corp

Coal India
Maharatna PSU

CURRENT ROUND ASK

₹10 Cr
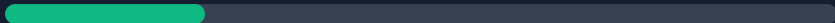
₹2.4 CR COMMITTED   **₹7.6 CR SEEKING**

Allocation Strategy

- R&D / Product — **40%**
- Pilot Expansion — **30%**
- Operations — **20%**
- BD & Mktg — **10%**

Execution Roadmap

FY 2025-26

Q1-Q2 2025   **ACHIEVED**
Foundation & Traction
Secured ₹2.4 Cr seed funding. Onboarded OMC & Coal India. Prototype validation completed.

Q3 2025 (Current)   **IN PROGRESS**
Deployment & Validation
Deploying pilot projects at OMC sites. Rolling out Fleet Management System for Coal India.

Q4 2025   **PLANNED**
Scale & Enterprise Entry
Scale to 5+ enterprise clients. Demonstrate >15% efficiency gain. First major B2G tender bid.
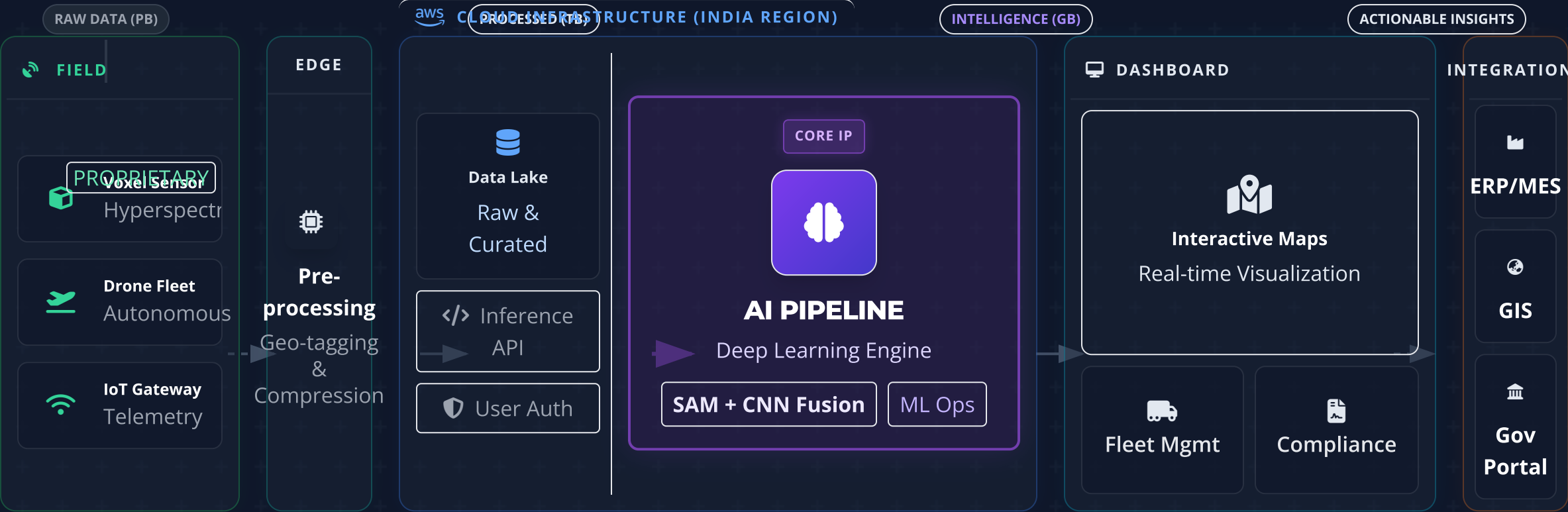
Q1 2026   **PLANNED**
Expansion & Series A Prep
Expand into Metallic Minerals segment. Reach ₹5 Cr ARR run rate.

ⓘ Tranches released upon milestone completion

Lean Canvas: Vyomchara

⚠ PROBLEM

- **Data Silos:** Geology, Ops, and Reporting don't share a single source of truth.
- **High Costs:** Foreign tech (Hexagon/Reactore) is too expensive for mid-tier Indian firms.
- **Safety Gaps:** Manual surveying and reporting lead to accident risks.
- **Compliance:** Slow, error-prone manual reporting to government bodies.

EXISTING ALTERNATIVES
Manual surveying, Excel sheets, Expensive foreign ERPs.

🧩 SOLUTION

- **Voxel Sensor:** Portable hyperspectral imaging.
- **Drone Integration:** Autonomous data collection.
- **SAM+CNN AI:** Automated mineral identification.
- **Unified Dashboard:** Real-time insights & reporting.

📈 KEY METRICS

- Mineral Identification Accuracy (%)
- Operational Efficiency Gain (%)
- Deployment Time (Days vs Weeks)
- Annual Recurring Revenue (ARR)
- Cost per Hectare Surveyed

🎁 UNIQUE VALUE PROP

"The first unified, affordable Mining 4.0 platform optimized specifically for Indian geology and workflows."

- End-to-end integration (Hardware + AI + Software)
- 1/5th the cost of global incumbents
- Zero-touch compliance reporting

HIGH-LEVEL CONCEPT
"Android for the Indian Mine"

🛡 UNFAIR ADVANTAGE

- **Integrated Stack:** Seamless flow from sensor to dashboard is hard to replicate.
- **Proprietary AI:** Models trained on exclusive Indian geological datasets.
- **Cost Structure:** Low-cost hardware integration.

🚚 CHANNELS

- Direct Sales (Pilot Projects)
- Strategic Partnerships (Drone Operators)
- Government Tenders (GeM Portal)
- Mining Industry Associations (FIMI)

👥 CUSTOMER SEGMENTS

- **Private Contractors:** Mid-tier mining firms needing efficiency to compete.
- **PSUs / Government:** Coal India, OMC, NMDC (High volume, compliance focus).
- **EPC Firms:** Infrastructure companies with mining verticals.

EARLY ADOPTERS
Tech-forward private contractors in Odisha/Jharkhand.

💲 COST STRUCTURE

- R&D (Sensor Hardware & AI Models)
- Cloud Infrastructure & Data Storage
- Field Operations (Pilot Deployment)
- Sales & Business Development

💵 REVENUE STREAMS

CONSULTANCY	RECURRING	HARDWARE
Pilot Fees	**SaaS Licensing**	**Sensor Sales/Lease**

Technical Architecture: End-to-End Logic Flow

BHAR-777023
CONFIDENTIAL

RAW DATA (PB) — CLOUD INFRASTRUCTURE (INDIA REGION) — PROCESSED (TB) — INTELLIGENCE (GB) — ACTIONABLE INSIGHTS

FIELD

PROPRIETARY
Voxel Sensor
Hyperspectral

Drone Fleet
Autonomous

IoT Gateway
Telemetry

EDGE

Pre-processing
Geo-tagging & Compression

Data Lake
Raw & Curated

</> Inference API

🛡 User Auth

CORE IP

AI PIPELINE
Deep Learning Engine

SAM + CNN Fusion | ML Ops

DASHBOARD

Interactive Maps
Real-time Visualization

Fleet Mgmt

Compliance

INTEGRATIONS

ERP/MES

GIS

Gov Portal

SECURITY & GOVERNANCE LAYER Foundation
End-to-End Encryption • Role-Based Access Control (RBAC) • Immutable Audit Logs

INDIAN DATA RESIDENCY COMPLIANT

✓ ISO 27001 Ready