

Metaverse of 20 Ai Layers-

Foundation Layer 1 and 2:

Canonical & Metadata

AI Layers 1–12:

Twelve Surface AI Layers (Ownership → ESG → Tokenisation)

AI Layers –1 to –6:

Six Subsurface AI Layers (Soil → Water → Minerals → Subsurface Risk)

Full 3 D Intelligence Platform Enable?

Builds a full 3D “Land Intelligence Graph” — above, on, and below the land
Enables high-confidence infra investments (rail, solar parks, urban townships)
Adds underground risk and asset value to ESG + REIT + insurance layers
Unlocks new asset classes: soil carbon tokens, mineral leases, water rights
Helps avoid disasters (sinking, contamination, utility damage)

A..Foundation Layer : Canonical & Metadata Layer: The True Base Layer
(Below the "Land Parcel")

Foundation Layer 1 - Canonical Data

The “gold standard” cleaned, verified, and standardised version of land data

Includes:

Digitised RoRs, registry deeds, mutation chains
Verified survey numbers, geo-coordinates
Normalised owner names (across 50 spellings in vernacular)
Spatial boundaries as geojson

Foundation Layer 2 -Metadata Layer - Data about data

Tracks:

Source of truth (government vs satellite vs citizen upload)
Time stamps (when digitised, last mutation, next review)
Confidence levels & anomaly flags
Change history (who updated, what changed, when)

B- Ai Layers Above Surface

Ai Layer 1 -Ownership Lineage

Builds a structured ownership tree from historical deeds and mutation records

Flags missing links, succession breaks, GPA-only transfers

Output: Verified chain of title + Ownership Integrity Score

Ai Layer 2 -Legal Conflict Prediction

Trains on past litigation, overlapping boundaries, disputed deeds

Predicts probability of legal challenge

Output: Conflict Risk Score (%), Nature of Likely Dispute

Ai Layer 3 – Encumbrance & Lien AI

Extracts charges from registry, banks, and court records

Detects mortgages, co-owner consent gaps, court stays, land ceiling violations

Output: Encumbrance Profile + Red Flags

Ai Layer 4 -Boundary Intelligence

Uses satellite, drone, and cadastral data to check boundary alignment

Detects encroachments, overlaps, buffer zone infractions

Output: Boundary Accuracy Index, Encroachment Map

Ai Layer 5 –Zoning & Land Use AI

Cross-checks land use (from satellite/ground) vs master plan zoning

Flags illegal construction, green zone violation, FSI misuse

Output: Zoning Violation Layer, FSI Opportunity

Ai Layer 6 - ESG & Climate Risk AI

Combines slope, flood, fire, tree cover, soil erosion, heat stress data

Flags ESG threats and sustainability potential

Output: ESG Score (E1–E5), Hazard Exposure Index

Ai Layer 7 -Carbon Potential & Regeneration AI

Trains on NDVI, biomass, canopy, carbon stock and rainfall data

Quantifies rewinding or afforestation potential

Output: Carbon Credit Eligibility, Forest Index

Ai Layer 8 - Land Valuation & ROI Prediction AI

Learns from sale registry, nearby infra, economic growth trends

Predicts 5Y land value trajectory & income yield if leased/sold

Output: Value Forecast Graph, Monetisation Score

Ai Layer 9 - Tokenisation Readiness

Evaluates if the parcel is eligible for Blockchain, tokenization

Considers title clarity, Conflict score, Zoning compliance

Output: Token Grade (T1–T5), Recommended Smart Contract Type

Ai Layer 10 - Stamp Duty & Mutation Simulation AI

Predicts applicable stamp duty, auto-fills mutation templates

Checks Aadhaar match, payment status, e-registry steps

Output: Mutation Package Generator, Workflow Readiness Score

Ai Layer 11 - LLM-Based Parcel ChatGPT Layer

Allows citizens, banks, officials to query the parcel like:

“Is this parcel mortgageable?”

“Was there a mutation in 1992?”

“Can I build a warehouse here?”

Output: LLM-generated answers, citations from internal records

Ai Layer 12- Land CIBIL Score- Parcel Trust & Risk Index

Aggregates all scores (ownership, risk, ESG, zoning, tokenisation)

Outputs a single Parcel Trust Score (0–100)

Use case: like a CIBIL score for land

Ai Layer - Optional Contextual Layers (Advanced Tier)

Disaster Memory Layer: Past floods, fires, seismic events

Political Dispute Layer: Naxal, tribal protest, eviction history

Infrastructure Adjacency Layer: Road/rail/metro/port proximity score

Parcel Transaction Heat Index: Velocity of sales in past decade

C: AI Layers Below the Ground (Subsurface Intelligence Stack)

These layers would stack underneath the “Land Parcel” base in your AI tower — forming a kind of “Subsurface Twin” of every parcel.

Ai Layer 13 - Soil Composition & Fertility

Inputs: Soil sample data, remote sensing (spectral data), agro-climatic zoning

Learns: Soil health, nutrient profile, acidity, salinity

Output: Soil Fertility Index, Crop Suitability Score

Use Case: AgriTech, precision farming, organic certification

Ai Layer 14 -Groundwater

Inputs: Groundwater table depth data, well logs, satellite GRACE data, rainfall patterns

Learns: Recharge rate, water stress level, contamination probability

Output: Groundwater Availability Score, Depletion Risk Index

Use Case: Agri insurance, land suitability for water-intensive crops, ESG rating

Ai Layer 15 - Geo-Structural AI

Inputs: Geological surveys, fault line maps, seismic activity data

Learns: Bedrock depth, soil liquefaction potential, fault zone proximity

Output: Earthquake Resilience Score, Foundation Risk Index

Use Case: Infrastructure projects, tunnel boring, mining, urban planning

Ai Layer 16- Mineral & Subsurface Resource AI

Inputs: Geological prospecting data, mining leases, seismic exploration maps

Learns: Ore presence likelihood, historical extraction, legal mining status

Output: Mineral Potential Index (iron, coal, sand, lithium etc.)

Use Case: Resource auctions, illegal mining detection, mineral asset tokenisation

Ai Layer 17- Subsurface Infrastructure AI

Inputs: Utility line maps, smart city data, LIDAR scans, drone GPR

Learns: Underground pipelines, sewage, electric, telecom cable layouts

Output: Utility Interference Risk Map

Use Case: Urban planning, infra risk mitigation, smart cities, REIT zoning

Ai Layer 18 -Subsurface Carbon & Biomass AI

Inputs: Soil carbon density, tree root models, AI-inferred NDVI trends

Learns: Soil organic carbon stock, potential for belowground sequestration

Output: Subsurface Carbon Credit Potential

Use Case: Climate finance, ESG rating, carbon tokenisation

Bonus Layer: Subsidence & Collapse Risk AI

Predicts land sinking due to groundwater depletion, mining, weak foundations

Uses satellite time series, hydrological models

Output: Subsidence Risk Score