Landvex

Intelligence Methodology Technical Overview

How field observations become decision intelligence

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1. Executive Summary

Landvex transforms unstructured field observations into structured decision intelligence for organisations that own, manage or invest in physical assets. This document describes the complete methodology — from field capture through AI review, normalization and aggregation to the delivery of actionable intelligence outputs.

The core principle is **evidence-based intelligence**: every score, index and forecast is traceable to source observations. Every conclusion can be challenged. Every assumption is explicit.

Metric	Target
Submission approval rate	85%
GPS accuracy (standard)	< 50 metres
GPS accuracy (precision)	< 10 metres
Data freshness (standard)	Observations within 90 days
Data freshness (premium)	Observations within 30 days
Data residency	EU only (AWS eu-north-1, Stockholm)

2. Data Collection Layer

2.1 The quiXzoom Observation Network

Landvex intelligence is powered by the quiXzoom contributor network — verified field observers who photograph infrastructure, buildings and urban environments on defined missions. Contributors are referred to as Zoomers.

2.2 Contributor Verification

Every Zoomer undergoes one-time KYC (Know Your Customer) verification before their first payout. Verification confirms identity, residency and bank account ownership. Contributor identities are stored as pseudonymised hashes in the intelligence pipeline — they are not included in delivered outputs.

2.3 Mission Types

Type	Description	Typical use case
Infrastructure	Bridges, roads, utility assets, drainage	Condition scoring, maintenance prioritisation
Facade	Building exteriors, storefronts, signage	Property assessment, compliance monitoring
Commercial survey	Business activity, vacancy, signage	Retail intelligence, commercial vitality
Post-event	Damage documentation after weather events	Insurance claims, disaster assessment
Verification	Address, access, asset existence	Data quality assurance

2.4 Submission Data

Each submission includes: high-resolution photograph, GPS coordinates (locked at capture start), EXIF metadata (device, timestamp, focal length), mission ID, and a device fingerprint for anti-fraud purposes.

3. Validation Pipeline

STEP 1

GPS Validation

Submitted coordinates are validated against mission target coordinates. Submissions outside tolerance (50m standard / 10m precision) are auto-rejected or flagged for human review. A GPS accuracy class is assigned: coarse (>50m), balanced (10–50m), or precise (<10m).

STEP 2

AI Image Review

Each image is analysed for specification compliance (correct object, correct angle, correct detail level), technical quality (resolution, blur, exposure), and content relevance (target present in frame). A quality score 0–100 is assigned. Submissions below threshold receive a rejection code.

STEP 3

Human Review (Edge Cases)

AI-borderline submissions (score 40–60) are routed to a human reviewer who applies the mission specification. Decisions are logged with reviewer ID and timestamp. An appeals process is available for contested rejections.

4. Intelligence Layer

4.1 Normalization

Approved submissions are converted to structured data points. Entity extraction identifies: location (polygon/point), object type, condition class (1–5), and change signal (improving/stable/deteriorating). Each data point retains its source attribution throughout the pipeline.

4.2 Aggregation and Scoring

Observations are aggregated by geographic unit (district, city, region). Five index scores are calculated per unit, each 0–100:

Index	What it measures
Opportunity	Commercial and investment opportunity concentration
Growth	Rate of positive change in commercial and physical conditions
Commercial Vitality	Density and health of commercial activity
Infrastructure Stability	Observed infrastructure condition vs maintenance expectations
Investment Confidence	Composite score for investment decision support

4.3 Contradiction Detection

Aggregated observations are compared against official data sources (national statistics, municipal open data, infrastructure registers). Where observed conditions diverge significantly from official narratives, a Narrative Conflict Alert is generated with a confidence score and supporting/contradicting evidence count.

5. Output Formats

Format	Description	Delivery
Index scores	0–100 per dimension, per geographic unit	Dashboard, API, CSV
Contradiction report	Flagged narrative conflicts with evidence	PDF, JSON
City intelligence report	District-level scoring with trend analysis	PDF
Raw data export	Structured observations with source attribution	JSON, CSV, GeoJSON
API access	Programmatic access to scores and reports	REST API (enterprise)

6. Data Quality

6.1 Quality Targets

Landvex targets a minimum 85% approval rate on submitted observations. Below this threshold, additional human review is activated. Enterprise SLAs specify minimum observation counts per geographic unit before scores are considered reliable.

6.2 Confidence Scoring

Every data point and aggregate score includes a confidence score (0–100) based on: observation count (higher = more confident), recency (fresher = more confident), cross-validation against multiple submissions of the same object, and reviewer consensus where human review was applied.

6.3 Known Limitations

Methodology limitations — disclosed to all clients:

- Coverage gaps: areas with few active Zoomers have lower observation density and confidence
- Observational bias: Zoomers select from available missions — systematic gaps may exist for certain asset types or times of day
- Time-of-day effects: commercial activity observed at 14:00 on a Tuesday differs from 19:00 on a Friday
- Seasonal variation: conditions in December differ from July — indices should be interpreted in seasonal context
- Official data lag: contradictions may reflect official data being outdated rather than Landvex data being wrong

7. Governance

7.1 Data Lineage

Every intelligence output is traceable to its source observations. On request, Landvex provides a complete audit package: observation timestamps, GPS accuracy classes, AI quality scores, human review decisions, normalization logs, and aggregation parameters. Full data lineage documentation: landvex.com/data-lineage/

7.2 Data Residency

All data is stored exclusively in the EU (AWS eu-north-1, Stockholm, Sweden). No data is transferred outside the EU without explicit client instruction and appropriate safeguards (Standard Contractual Clauses where applicable).

7.3 GDPR Compliance

Contributor personal data is processed under GDPR Article 6(1)(b) (contract performance) and 6(1)(f) (legitimate interest). Contributor identities are pseudonymised before inclusion in intelligence outputs. Right to erasure is supported — deletion confirmed within 30 days of request.

7.4 Sub-processors

Landvex uses two infrastructure sub-processors: Amazon Web Services (EU region, SOC 2 Type II / ISO 27001) for infrastructure, and Stripe Inc. (EU data residency, SCC-covered) for payment processing. Full sub-processor list: landvex.com/subprocessors/

7.5 Enterprise Contracts

Enterprise clients receive a Data Processing Agreement (DPA) under GDPR Article 28. Standard Contractual Clauses are available for non-EU data transfers. Service Level Agreements specify data freshness, uptime and quality commitments. Contact: legal@landvex.com

8. Contact & Further Information

Enquiry type	Contact
Enterprise intelligence enquiries	enterprise@landvex.com
Methodology questions	contact@landvex.com
Data protection / DPA	legal@landvex.com
Security / responsible disclosure	security@landvex.com
Pilot programme	landvex.com/pilot/