Geospatial AI for Land Administration Training Course: Cadastre, Surveying and Title Records

5 – 16 September 2027
Doha

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Programme Summary

Geospatial AI for land administration is the subject of this two-week training course for land agency, survey authority and registry leaders at strategic level, ending in an AI adoption pack for one cadastre and title register. Parcel maps, survey plans and title records are often old, uneven and costly to correct, and AI tools promise gains that are hard to verify. The programme moves from land data and standards to AI mapping, record checking, accuracy testing and governance, using prepared parcel and register samples. Mars Training Centre UK delivers this programme on geospatial AI for land administration to mixed-organisation cohorts.

The Business Case

Land agencies, registries and survey bodies hold the records on which ownership, lending and planning depend. Leaders who can test an AI mapping claim against ground survey, see where records are weak and control suppliers can modernise a register without adding errors to it.

- Record Error Rate: Falls when AI checks are measured against surveyed parcels and corrections are logged.
- Mapping Backlog: Shrinks when AI extraction is applied only to sources where tested accuracy supports it.
- Dispute Exposure: Reduces when boundary evidence and decision rights are agreed before automated results are accepted.

Principles and Evidence Base

- ISO 19152 Land Administration Domain Model: The international standard describing parties, rights, responsibilities and spatial units, applied in Sessions 1, 4 and 6 to structure parcel and title data.
- FIG work on AI opportunities for cadastre: The surveyors' federation analysis of AI in integrated land administration, applied in Sessions 2, 3 and 8 to select and limit use cases.
- Precision and recall measures: The statistical principle for judging extraction results against reference data, applied in Sessions 5 and 7 to test AI outputs.

Intended Participants

- Leaders who approve digitisation, mapping and registry modernisation programmes.
- Survey and cadastre managers who own parcel accuracy and ground control standards.
- Registry and title record heads who decide which records can be changed by automated means.
- Technology and procurement managers who buy imagery, extraction and records platforms.
- Legal and risk advisers who review boundary evidence and data protection for land records.

Typical settings include land registries, survey departments, municipal planning bodies and property finance.

Learning Outcomes

1. Participants will be able to evaluate land and survey data for completeness, positional quality and fitness for AI use.
2. Participants will be able to compare AI parcel extraction and record checking methods by precision, recall and cost.
3. Participants will be able to construct an accuracy test plan that uses ground survey as reference.
4. Participants will be able to prioritise registry records and map sheets for automated treatment by risk and value.
5. Participants will be able to diagnose weak supplier claims, data protection gaps and ownership problems in AI platforms.
6. Participants will be able to justify an adoption pack to a land authority board.

Programme Structure

Day 1: Geospatial AI for Land Administration Foundations

Which land administration decisions can AI support?

- Land Administration Decision Inventory
- Parcel and Title Data Landscape
- ISO 19152 Model Overview
- AI Method Family Map
- Use Case Long List

Day 2: Cadastral Data and Survey Sources

What do survey plans, imagery and registers actually contain?

- Survey Plan Content Review
- Aerial and Satellite Imagery Sources
- Register Field Completeness Check
- Coordinate Reference and Positional Quality
- Data Lineage Sheet

Day 3: FIG Use Case Selection

Which cadastre uses are reliable enough to pursue?

- FIG Cadastre AI Opportunity Review
- Value and Risk Scoring Grid
- Source Condition Rating
- Human Review Load Estimate
- Shortlist Rationale Note

Day 4: Parcel Modelling and Record Structure

How are parcels, rights and parties described for machines?

- ISO 19152 Class Mapping
- Rights and Responsibilities Table
- Spatial Unit Identifier Rules
- Legacy Record Crosswalk
- Metadata Standard Sheet

Day 5: AI Boundary Extraction and Mapping

How do AI tools find parcel boundaries in images and plans?

- Boundary Extraction Method Comparison
- Training Sample Design
- Plan Digitisation Review
- Confidence Score Reading
- Reference Boundary Set

Day 6: Title Record Checking and Querying

How can AI read and check title and plan records?

- Record Matching Rules
- Plan and Register Discrepancy List
- Natural Language Query Design
- Exception Queue Design
- Correction Log Template

Day 7: Accuracy Testing Against Ground Survey

How is an AI result proved against the ground?

- Reference Sampling Plan
- Precision and Recall Table
- Positional Error Summary
- Acceptance Threshold Memo
- Retest Schedule

Day 8: Governance, Data Protection and Suppliers

Who is accountable when an automated result is wrong?

- Decision Rights Chart
- Personal Data Handling Review
- Supplier Claim Test Sheet
- Model Change Control Rules
- Audit Trail Specification

Day 9: Operating Model and Change

How does a registry run AI safely day to day?

- Role and Skills Map
- Exception Handling Procedure
- Public Correction Route
- Pilot Scope Statement
- Benefit Tracking Sheet

Day 10: Adoption Pack for One Cadastre and Register

Do the findings join into a pack a board can approve?

- Applying the Session 3 Shortlist
- Testing the Session 7 Acceptance Memo
- Checking the Session 8 Decision Rights Chart
- Reviewing the Session 9 Pilot Scope
- Completing the Adoption Pack

Methodology

The programme is a data workshop built on prepared parcel maps, survey plans and register extracts from an urban and a rural land office. Participants read extraction results, set test samples, judge suppliers and rehearse registry decisions, then defend a pack to peers acting as a land authority board.

- Suggested activity: Comparing two boundary extraction outputs against a prepared reference set.
- Suggested activity: Drawing a reference sample and scoring precision and recall for a record check.
- Suggested activity: Questioning a supplier presentation with the supplier claim test sheet.

Capstone Output

Each participant completes an adoption pack for one cadastre and title register. It holds the use case shortlist, a data quality note, an accuracy test plan with acceptance thresholds, a decision rights chart and a pilot scope. At work it goes to the land authority board for approval and sets the routine for testing later AI proposals.

Frequently Asked Questions

Is geospatial AI for land administration suitable for leaders who are not surveyors or data scientists?

Yes. Geospatial AI for land administration is taught through prepared parcel maps and register samples. You need responsibility for land, survey or registry decisions, but no programming, surveying or statistics background.

Which standard does geospatial AI for land administration rest on in this programme?

Geospatial AI for land administration here rests on ISO 19152 for describing parcels, rights and parties, FIG analysis of AI for cadastre, and precision and recall measures for testing results against reference data.

How is the adoption pack from geospatial AI for land administration used at work?

You take the adoption pack to your land authority board, use its accuracy test plan to judge each supplier proposal, and keep its decision rights chart as the rule for automated record changes.

How does geospatial AI for land administration differ from a programme on land registration law?

Geospatial AI for land administration concentrates on testing and governing AI mapping and record checking, while a programme on land registration law concentrates on rights, transfers and legal procedure.