GIS Training Course: Spatial Data Governance for Infrastructure and Utility Leaders

14 – 18 February 2027
Kuala Lumpur

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Programme Summary

GIS spatial data governance is the subject of this one-week training course for directors and heads of function at strategic level, ending in a governance charter for one asset, land or network dataset. Maps of pipes, roads, plots and cables are often held by several teams with no agreed owner, accuracy or update cycle. The programme moves from coordinate and data foundations to quality diagnosis, access and sharing design, and a funded business case. Mars Training Centre UK delivers this programme on GIS spatial data governance to mixed-organisation cohorts.

The Business Case

Decisions on renewals, excavation permits, land acquisition and emergency response rely on maps that staff assume are right. When spatial data has no named owner, errors travel between departments, duplicate layers multiply and field crews lose trust in the record. Clear rules for ownership, accuracy and updates let leaders fund mapping work on evidence and retire layers nobody maintains.

- Strike and Damage Incidents: Fall as mapped positions of buried assets carry a stated accuracy and a review date.
- Rework in Capital Projects: Falls as design teams draw on one agreed land and network layer.
- Response Time in Operations: Improves as access rules put current maps in front of the right people.

Principles and Evidence Base

- ISO 19115 Geographic Information Metadata: Supplies the record of source, date and purpose attached to each layer in Sessions 2 and 4.
- ISO 19157 Geographic Information Data Quality: Provides the quality elements, such as positional accuracy and completeness, that the programme uses to diagnose layers in Session 2.
- Open Geospatial Consortium Web Map and Feature Service Standards: Frame how maps are shared between organisations without copying data, applied in Session 3.

Intended Participants

- Directors accountable for asset, land or network records that rely on maps.
- Heads of engineering, planning or operations who commission mapping work and use its results.
- Data and information leaders who steward spatial layers across departments.
- Heads of risk or compliance who need to evidence the reliability of location records.

Typical settings include water and power utilities, road and rail authorities, municipal planning, telecommunications networks and pipeline operators.

Learning Outcomes

1. Participants will be able to diagnose weaknesses in a spatial dataset using positional, completeness and currency tests.
2. Participants will be able to construct a map of data responsibilities showing who owns, edits and approves each layer.
3. Participants will be able to evaluate coordinate system and geodatabase choices against the needs of several departments.
4. Participants will be able to design access and sharing rules for internal and external users of spatial data.
5. Participants will be able to prioritise mapping investments by risk and decision value.
6. Participants will be able to justify a governance charter to an executive sponsor.

Programme Structure

Day 1: GIS Foundations for Leaders

What must a leader know about how spatial data is built before judging its reliability?

- Layer, Feature and Attribute Model
- Coordinate System and Datum Choices
- Survey, Satellite and Field Capture Sources
- Geodatabase Structure Review
- Asset Mapping Register Layout

Day 2: Diagnosing Map Data Quality

How good is the mapped record, and how is that shown to users?

- ISO 19157 Quality Element Test
- Positional Accuracy Sampling Plan
- Completeness and Currency Check
- ISO 19115 Metadata Record
- Duplicate Layer Inventory

Day 3: Designing Access, Sharing and Integration

Who may see, edit and combine each layer, and through which service?

- Spatial Data Ownership Matrix
- Edit and Approval Workflow
- Web Map and Feature Service Publication
- Link to Asset Register and Work Records
- Security Classification of Sensitive Layers

Day 4: Planning Investment and Update Cycles

Which mapping work earns funding, and how often must each layer be refreshed?

- Decision Value and Risk Ranking
- Layer Update Cycle Schedule
- Capture Method Cost Comparison
- Map Data Quality Dashboard
- Mapping Business Case Outline

Day 5: Governance Charter for One Dataset

Do the earlier tools combine into a charter that a sponsor can approve?

- Applying the Session 2 Quality Test
- Using the Session 3 Ownership Matrix
- Fixing the Session 4 Update Cycle Schedule
- Presenting the Business Case Outline
- Completing the Governance Charter

Methodology

The programme uses a data workshop built on a prepared file holding a water network layer, a road corridor layer and a land parcel layer, each with known faults. Participants work in small groups, test the layers, draw responsibility maps and defend their ratings to peers, with software shown only to illustrate each decision.

- Suggested activity: Sampling mapped pipe positions against survey points and rating positional accuracy.
- Suggested activity: Resolving a conflict between two departments that edit the same layer.
- Suggested activity: Ranking five mapping projects for a limited annual budget.

Capstone Output

Each participant completes a governance charter for one dataset of their choice. It holds a named owner, a quality statement, a metadata standard, access and sharing rules, an update cycle and a costed improvement plan. The charter is used at work to brief a sponsor and to agree responsibilities with the teams who edit and rely on the layer.

Frequently Asked Questions

Is a GIS spatial data governance course suitable for leaders who do not use mapping software?

Yes. GIS spatial data governance is taught through decisions, templates and a prepared dataset, not software buttons. It assumes experience owning or depending on asset, land or network records, and no earlier mapping skill.

Which standards does GIS spatial data governance rest on?

GIS spatial data governance rests on ISO 19115 for metadata, ISO 19157 for data quality and Open Geospatial Consortium web map and feature service standards for sharing.

How is the charter from GIS spatial data governance used at work?

You use the governance charter to brief your sponsor, agree owners and update cycles with the teams that edit each layer, and set the quality statement users see.

How does GIS spatial data governance differ from a software skills course?

GIS spatial data governance concentrates on ownership, accuracy, access and funding decisions, while a software skills course concentrates on operating mapping tools to produce maps and analysis.