

Advanced GIS for Management Decision Support and Project Planning Course

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Overview

Advanced GIS for Management Decision Support and Project Planning is a 1-week course for planners, project managers, GIS specialists and decision makers who leave with a spatial decision brief for a real site or project choice. The course addresses maps that describe places but never settle a decision, by applying GIS for decision support: spatial data preparation, suitability modeling, multi-criteria decision analysis, project monitoring maps and evidence presentation. GIS for decision support and project planning is taught by Agile Leaders Training Center.

Who Should Attend

- Planning teams responsible for land use, infrastructure and service coverage proposals
- Project management teams responsible for scheduling, locating and tracking capital works
- GIS teams responsible for spatial databases, analysis models and map production
- Senior managers responsible for approving investments, sites and resource allocation
- Asset and operations teams responsible for field networks and maintenance priorities

The course assumes participants already work with maps, spatial data or planning decisions, and it leaves out introductory software training and programming.

Departments and Industries

The course serves departments and industries that locate, plan, monitor or approve work across geographic areas.

- Municipal and urban planning departments
- Transport, roads and utilities organizations
- Real estate development and retail network planning
- Health, education and emergency service planning units
- Oil, gas, mining and environmental management functions
- Project management offices in construction and engineering firms

Learning Objectives

By the end of this course, participants will be able to:

- Evaluate spatial data quality, projection and fitness for a decision
- Apply overlay, proximity and network analysis to planning questions
- Build weighted site suitability models with multi-criteria decision analysis
- Use spatial scenarios to compare project locations and phasing
- Design monitoring maps and dashboards that track project progress
- Build a spatial decision brief for senior decision makers

Course Agenda

Day 1: Spatial Data Foundations for Decisions

- Decision Framing Canvas: Question, Geography, Options and Criteria
- Vector and Raster Data Models for Planning Layers
- Coordinate Reference Systems and Projection Checks for Project Areas
- Spatial Data Quality Review: Completeness, Accuracy and Currency
- Attribute Joins and Geodatabase Structure in ArcGIS Pro and QGIS

Day 2: Spatial Analysis Methods

- Overlay Analysis Tools for Constraint and Exclusion Mapping
- Buffer and Proximity Analysis for Service Catchments
- Network Analysis for Travel Time, Routing and Coverage
- Hot Spot and Density Surfaces for Demand Patterns
- Remote Sensing Imagery for Land Cover and Change Detection

Day 3: Suitability Modeling and Site Selection

- Multi-Criteria Decision Analysis Matrix for Location Choices
- Criteria Standardization and Reclassification of Raster Layers
- Weighted Overlay Model Built in ModelBuilder or the QGIS Graphical Modeler
- Sensitivity Testing of Criteria Weights and Thresholds
- Site Shortlisting Scorecard for Candidate Parcels

Day 4: Mapping for Project Planning and Monitoring

- Spatial Work Breakdown Map Linking Tasks to Locations
- Scenario Comparison Maps for Phasing and Alternative Alignments
- Field Data Collection Workflow for Progress Updates
- Operations Dashboard Design with Status, Indicators and Alerts
- Story Maps and Map Layout Standards for Decision Audiences

Day 5: Applied Spatial Decision Practice and Capstone

- Exercise: Screening a Project Area with Constraint and Proximity Layers
- Exercise: Running a Weighted Suitability Model for a New Facility
- Exercise: Building a Progress Monitoring Dashboard for a Capital Project
- Exercise: Stress-Testing a Site Ranking Against Changed Weights
- Capstone: Presenting a Spatial Decision Brief to a Mock Approval Panel

Practical Exercises

The course includes suggested activities that link spatial analysis to management choices.

- Suggested activity: audit a planning dataset for projection, gaps and currency before analysis
- Suggested activity: model service coverage for a clinic or retail network using travel time
- Suggested activity: rank candidate sites with a weighted suitability model and defend the weights
- Suggested activity: turn a project schedule into a location-based progress map

FAQs

Who is Advanced GIS for Management Decision Support training suited to, and what does it assume?

It suits planners, project managers, GIS specialists and decision makers who already use maps or spatial data at work. It assumes working familiarity with a desktop GIS and does not teach software basics or programming.

How does a GIS for decision support course differ from an introductory GIS course?

An introductory GIS course teaches software operation and map making. A GIS for decision support course applies analysis, suitability modeling and scenario comparison to management questions and presents the results as evidence for a decision.

How is multi-criteria decision analysis used in GIS site selection?

Multi-criteria decision analysis converts criteria such as access, cost, land constraints and demand into standardized layers, assigns weights, and combines them in a weighted overlay that ranks every location by suitability.

How can GIS support project planning and monitoring?

GIS links project tasks, assets and progress data to locations, so planners can compare alignments, phase works by area, and track status on maps and dashboards that show where delays and risks concentrate.

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How should spatial evidence be presented to decision makers?

Spatial evidence works best as a short brief: the decision question, the options on a clear map, the criteria and weights used, the ranking, and the sensitivity of that ranking to changed assumptions.

Conclusion

Participants take back a spatial decision brief that pairs a tested suitability model with maps ready for an approval meeting. The brief gives planning and project teams a repeatable method for turning spatial data into ranked options. Decision makers then receive location choices with visible criteria, weights and trade-offs rather than a single map.

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