

POLE ASSET

ROAD SEGMENT · AI CLASSIFIED

AI GIS UAE · GEOSPATIAL AI UAE · SMART CITY GIS

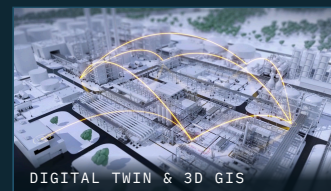
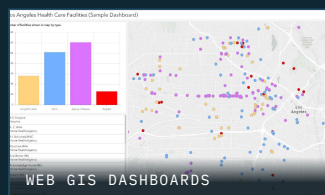
AI GIS & Geospatial Intelligence

Smarter Maps, Automated Spatial Analysis
& AI-Powered Decision Support

PLATFORM AT A GLANCE

Enterprise GIS, computer vision and spatial AI delivered as one operational layer

- Automated spatial analysis, hotspot & risk mapping
- Computer-vision asset & defect detection with auto-geolocation
- Satellite, aerial and drone intelligence to GIS layers
- Digital twin, 3D GIS and BIM/CAD integration
- Natural language GIS assistant — Arabic & English
- Connected to ArcGIS Enterprise, ERP, EAM, CMMS and IoT



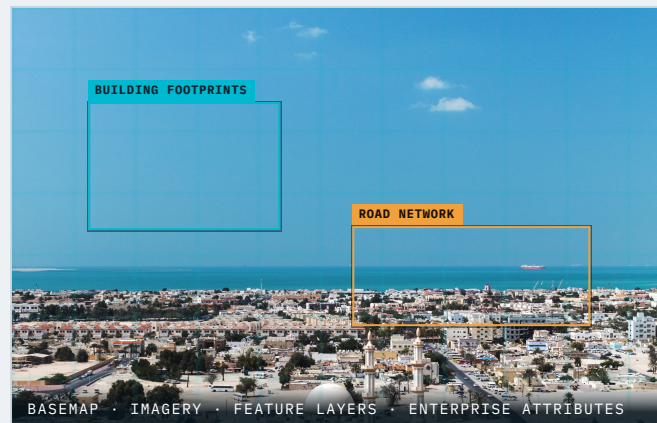
GIS SOLUTIONS UAE · ARCGIS AI UAE · GIS COMPANY ABU DHABI · GIS COMPANY DUBAI · AI MAPPING SOLUTIONS UAE · GEOSPATIAL INTELLIGENCE UAE
AI ROAD INSPECTION UAE · GIS ASSET MANAGEMENT UAE · DIGITAL TWIN UAE · ARCGIS ENTERPRISE UAE · COMPUTER VISION GIS · BIM GIS INTEGRATION UAE

GEOSPATIAL INTELLIGENCE UAE

AI GIS & Geospatial Intelligence

We combine **GIS, artificial intelligence, computer vision and spatial analytics** to turn maps, imagery, field data and enterprise information into actionable intelligence — supporting planning, inspection, asset management and day-to-day operational decision-making.

Delivered across Web GIS, Mobile GIS, Desktop GIS and Enterprise GIS, for government, municipalities, utilities, infrastructure operators and large enterprises across the UAE and wider GCC.



WEB GIS ENTERPRISE UAE

MOBILE GIS FOR MUNICIPALITY

DESKTOP GIS FOR GOVERNMENT UAE

01

GIS Foundation

Authoritative basemaps, feature layers, geodatabases and map services as the system of record for location.

02

Artificial Intelligence

Models that classify, predict, cluster and prioritise — turning raw observations into ranked, decision-ready output.

03

Computer Vision

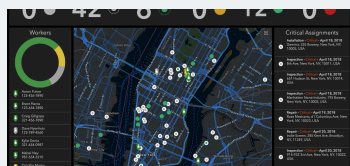
Detection of assets, defects and safety issues from vehicle, drone, mobile and approved CCTV imagery.

04

Spatial Analytics

Proximity, buffering, clustering, hotspots and change detection executed automatically at network scale.

ONE PLATFORM · FOUR WORKING SURFACES



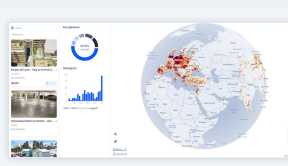
Web GIS

Browser dashboards, map viewers and shared operational layers.



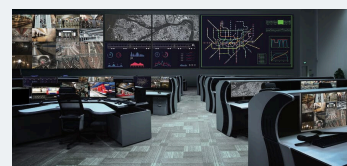
Mobile GIS

Offline/online field capture, GPS, photos and digital forms.



Desktop GIS

Advanced analysis, cartography, modelling and data preparation.



Enterprise GIS

Server, services, governance and integration with core systems.

FROM RAW DATA TO DECISIONS

INPUTS

Maps Imagery Field data
Enterprise records IoT / sensors

Geospatial AI Engine

Computer vision · spatial models · clustering · prediction

DECISION OUTPUTS

Planning Inspection Asset management Operations Work orders

BUILT FOR

Government

National and emirate-level spatial data programmes.

Municipalities

Roads, public assets, inspections, urban planning.

Utilities

Electricity, water, telecom network assets.

Infrastructure

Transport corridors, facilities, large capital assets.

Enterprises

Multi-site operators needing spatial visibility.



One spatial layer across the organisation

- Single authoritative location record shared by every department
- AI removes repetitive manual GIS data entry and map updates
- Field, office and command centre work from the same live map
- Deployed on-premise, private cloud or hybrid as required
- Arabic and English interfaces for mixed operational teams

AI GEOSPATIAL ANALYTICS

AI-Powered Spatial Analysis

Analytical work that traditionally required a GIS specialist and manual processing runs automatically and continuously across the whole network — producing ranked, mapped, decision-ready results.

AUTOMATED ANALYTICAL CAPABILITIES

01

Spatial Pattern Detection

Automatically surfaces recurring geographic patterns across large feature sets.

02

Hotspot Identification

Concentrations of defects, incidents or service demand ranked by intensity.

03

Proximity Analysis

What lies near an asset, road, facility or reported incident.

04

Buffer Analysis

Distance zones for impact, clearance, coverage and service radius.

05

Route Optimization

Efficient inspection and maintenance routing across the network.

06

Spatial Clustering

Groups related observations and removes duplicate reporting.

07

Risk Mapping

Exposure and criticality mapped by zone, corridor or sector.

08

Change Detection

What changed between two imagery dates or survey passes.

09

Predictive Location Analysis

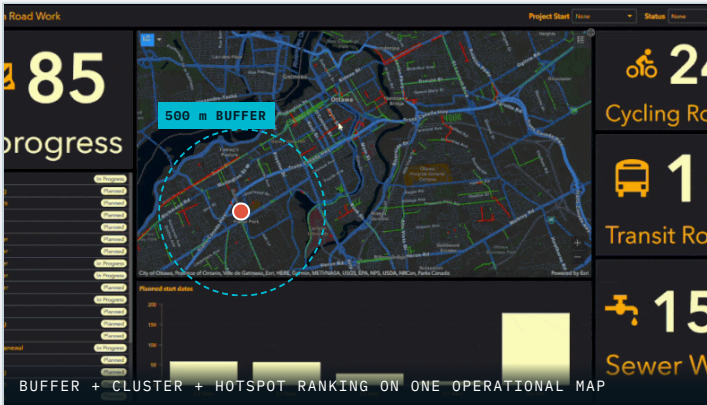
Where issues are likely to emerge next, based on history and context.

10

AI Planning Recommendations

Suggested priorities and interventions for planners to review.

WORKED EXAMPLE · DEFECT HOTSPOT TO PRIORITISED ACTION



How an analysis run executes

- 01

Ingest observations

Field reports, detections, sensor events and existing GIS features are collected against the network.
- 02

Cluster & de-duplicate

Repeated reports of the same real-world issue are grouped into a single feature.
- 03

Score & rank

Density, severity, asset criticality and risk exposure combine into a priority ranking.
- 04

Publish & act

Results publish to dashboards and, where configured, raise work orders in the enterprise system.

TYPICAL QUESTIONS ANSWERED AUTOMATICALLY

Which road corridors show the highest concentration of surface defects?

Which assets fall within 500 m of a planned excavation?

Where has land use or built-up area changed since the last imagery pass?

What is the most efficient inspection route for this sector today?

Which zones carry the highest combined risk exposure?

Which municipality sector has the highest defect count this month?

WHY IT MATTERS OPERATIONALLY

Analysis runs continuously — not once per reporting cycle

Because spatial processing is automated, the operational picture stays current between formal survey campaigns. Teams work from a live ranking of where attention is needed rather than a periodic static report.

Consistent method

The same analytical rules applied everywhere, every run.

Network scale

Whole-network coverage rather than sampled sections.

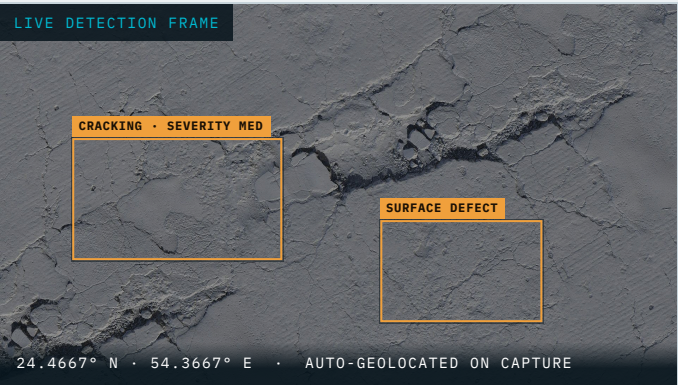
Audit trail

Every result traceable to its source observations.

COMPUTER VISION GIS · AI ROAD INSPECTION UAE

Computer Vision + GIS

AI models read imagery from vehicles, drones, mobile devices, body and helmet cameras and approved CCTV feeds — detecting assets, defects and safety issues, then writing each detection to the map as a located GIS feature with its own inspection record.



END-TO-END DETECTION WORKFLOW



DETECTION USE CASES IN PRODUCTION SCOPE

01
Road Defect Detection
Surface deterioration across the corridor.

02
Pothole Identification
Located and classified by severity.

03
Streetlight Condition
Outages and damaged luminaires.

04
Signboard Detection
Presence, condition and visibility.

05
Pole & Asset Detection
Infrastructure inventory build-up.

06
Building & Rooftop Analysis
Footprints, rooftops and additions.

07
Construction Progress
Site change over successive passes.

08
Parking & Traffic Analytics
Occupancy and flow patterns.

09
Safety-Compliance Inspection
Site and roadway safety conditions.

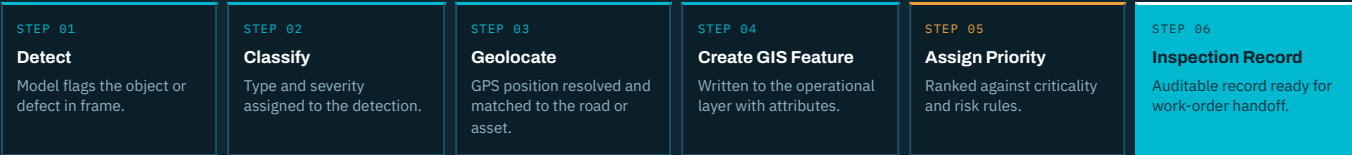
10
Automatic Geolocation
Every detection placed on the map.

CAPTURE SOURCES SUPPORTED



AI ROAD & INFRASTRUCTURE INSPECTION PIPELINE

Each detection becomes a governed inspection record



WHAT THE MODELS IDENTIFY

Potholes	Cracks	Damaged signs	Broken streetlights
Obstructions	Missing infrastructure	Safety issues	Asset condition

Human review stays in the loop

Detections are proposals, not final decisions. Supervisors confirm, reclassify or reject each record before it drives maintenance action — so model output is always governed by operational judgement.

DETECTIONS PUBLISHED AS GIS FEATURES

GIS ASSET MANAGEMENT UAE

Smart Asset Mapping

Every physical asset gets an accurate map position, a stable identity and a condition history — built up automatically from survey passes, AI detections and field confirmations rather than manual data entry.



DETECTED · GEOTAGGED · REGISTERED IN THE ASSET LAYER

ASSET CLASSES MAPPED AND MAINTAINED

Roads Carriageways & segments	CCTV Cameras Coverage & condition	Streetlights Luminaires & circuits	Utility Poles Position & attachments	Telecom Assets Cabinets & routes	Buildings Footprints & use
Signboards Type & visibility	Drainage Inlets & networks	Water Networks Lines & valves	Electricity Networks Feeders & equipment	Smart-City Sensors IoT device estate	Municipal Assets Public realm estate

ASSET LIFECYCLE — SURVEY TO GIS UPDATE

01 Survey	02 Detect	03 Geotag	04 Register	05 Inspect	06 Maintain	07 Update GIS
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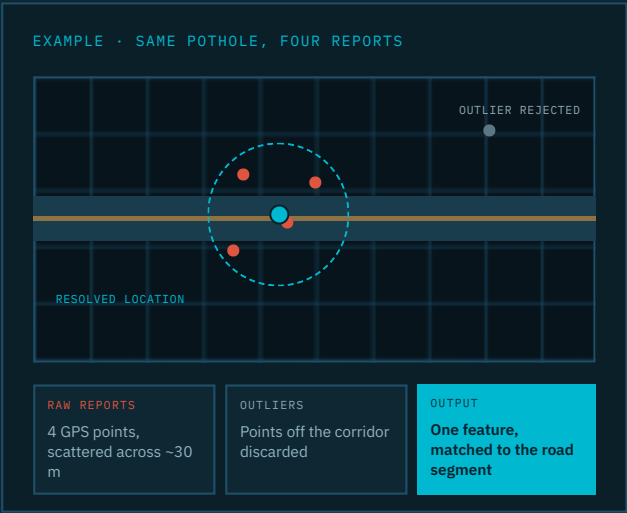
The loop is continuous — each maintenance action and field confirmation feeds the next GIS update, so the asset register stays aligned with site reality.

AI LOCATION INTELLIGENCE UAE

AI Geospatial Buffering & Location Intelligence

Field GPS is never perfect. Multiple observations of the same real-world object arrive with slightly different coordinates. AI resolves them into one trustworthy location.

- Combine multiple GPS observations of the same object
- Remove inaccurate or low-confidence location points
- Detect spatial outliers that fall outside the cluster
- Cluster repeated reports into a single incident record
- Estimate the most probable real-world position
- Match incidents to the correct road or asset segment
- Improve location accuracy for dispatch and field crews



OPERATIONAL EFFECT

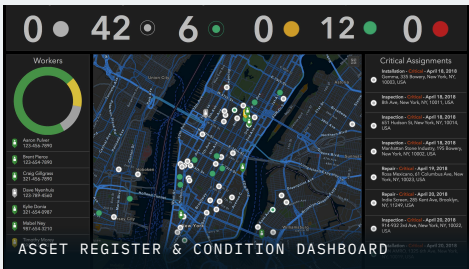
No duplicate work orders Four reports of one pothole produce one job, not four.	Crews arrive at the right point Resolved coordinates reduce time spent searching on site.	Clean asset register Stable identities prevent the same asset being recorded twice.	Trustworthy reporting Counts by sector reflect real objects, not raw report volume.
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ROAD & CORRIDOR ASSETS



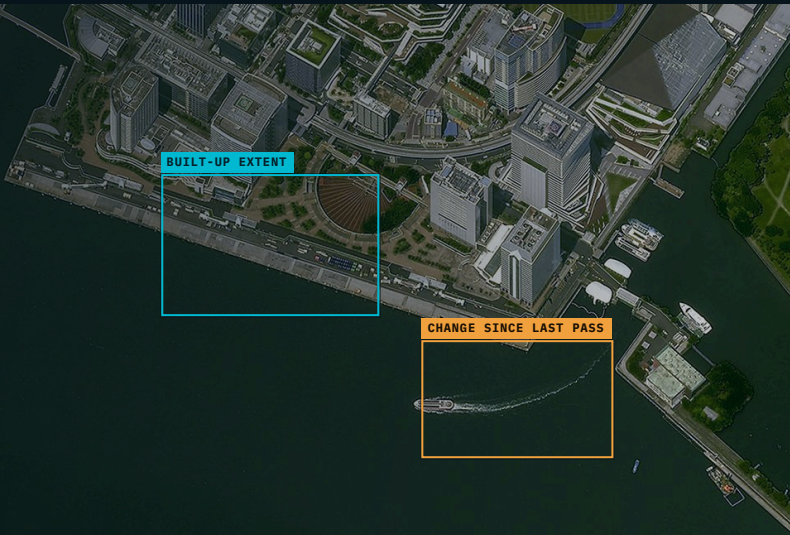
POLE, CAMERA & LIGHTING ESTATE



AI SATELLITE IMAGE ANALYSIS UAE · AI DRONE INSPECTION UAE

Satellite, Aerial & Drone Intelligence

Imagery from satellite, orthophoto and drone missions is interpreted by AI and converted directly into GIS layers — extending survey coverage without proportionally extending field effort.



IMAGERY INTELLIGENCE CAPABILITIES

01 Satellite Imagery Analysis Wide-area monitoring at repeat intervals.	02 Orthophoto Interpretation Measurable, georeferenced aerial mosaics.	03 Drone Inspection High-detail capture of specific assets and sites.	04 Land-Use Detection Classification of surface and usage types.	05 Construction Monitoring Progress tracked across capture dates.
06 Change Detection Automated before/after comparison.	07 Vegetation Analysis Green cover, encroachment and clearance.	08 Road & Infrastructure Extraction Linear features digitised from imagery.	09 AI Object Recognition Structures and equipment identified in scene.	10 Automatic GIS Layer Generation Interpretation output written straight to GIS.

IMAGERY TO GIS LAYER

ACQUIRE Satellite / Drone Capture	PREPARE Orthorectify & Mosaic	INTERPRET AI Object Recognition	COMPARE Change Detection	PUBLISH GIS Feature Layers
 ORTHOPHOTO · LAND-USE CLASSIFICATION	 CONSTRUCTION PROGRESS MONITORING	 DRONE SURVEY MISSION		

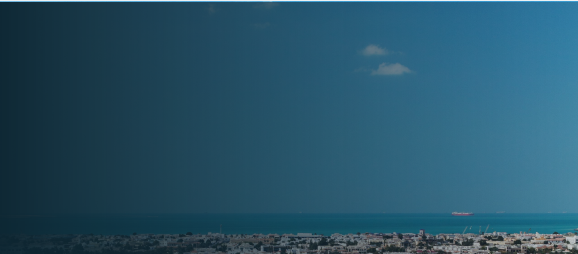
CHANGE DETECTION · COMPARISON OF TWO CAPTURE DATES

PASS A · BASELINE 	PASS B · CURRENT NEW STRUCTURE	What change detection returns ■ New, removed and modified structures ■ Land-use and surface-cover transitions ■ Encroachment onto corridors or reserves ■ Construction progress between passes ■ Candidate GIS edits for reviewer approval
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COVERAGE ECONOMICS

Wide-area coverage from imagery, field effort focused where it counts

Imagery interpretation establishes the broad picture across the whole area of interest. Drone and field inspection are then deployed selectively to the locations AI has flagged — rather than surveying everything at equal intensity.



DECISION-SUPPORT ASSISTANT · ARABIC & ENGLISH

Natural Language GIS Assistant

Staff who are not GIS specialists can ask questions in plain language and receive mapped, filtered, summarised answers — removing the bottleneck of routing every spatial question through a GIS analyst.

EXAMPLE QUERIES

> Show all damaged streetlights reported this month.

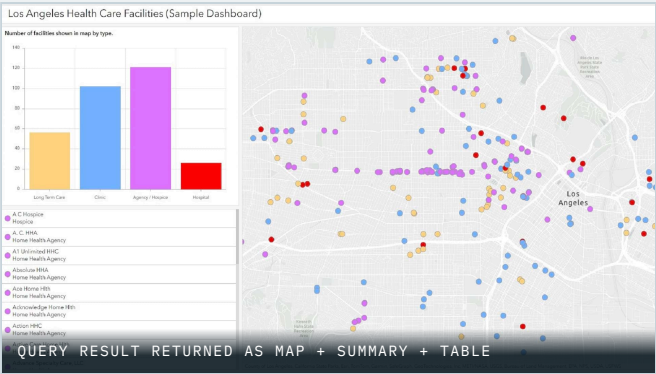
> Find assets within 500 metres of this road.

> Show inspection hotspots.

> Which district has the highest number of road defects?

> Create a summary of defects by municipality sector.

> Find all assets due for inspection.



ASSISTANT CAPABILITIES

Arabic & English
Bilingual query handling.

Map Search
Locate features and places.

Spatial Filtering
Within, near, inside, along.

Automated Reporting
Recurring outputs on schedule.

GIS Layer Discovery
Find the right layer to use.

AI Summaries
Narrative briefing of results.

Answers respect the user's existing GIS permissions — the assistant never widens data access.

FIELD INSPECTION & MOBILE GIS

Field Inspection & Mobile GIS

Inspectors work from the same authoritative map as the office — online or offline — with AI assisting classification at the point of capture and supervisors reviewing before records are finalised.

Offline / Online Maps
Works in low-coverage areas.

GPS Data Capture
Positions recorded on capture.

Photos & Video
Evidence attached to features.

AI Defect Classification
Suggested type and severity.

Voice-to-Text Reporting
Hands-free note capture.

Digital Forms
Structured, validated entry.

QR / Barcode / RFID
Positive asset identification.

Route Navigation
Guided to the next job.

Auto Timestamp & Geotag
Provenance on every record.

Supervisor Review

Approval before it counts.

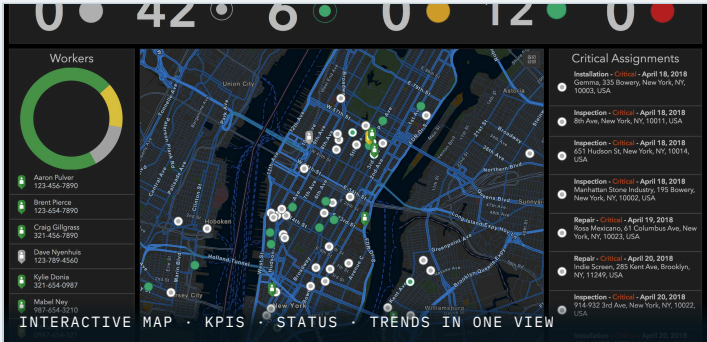
FIELD TO OFFICE LOOP

A record captured in the field appears on the operational dashboard as soon as connectivity allows, carrying its photos, GPS position, AI classification and inspector notes — no re-keying in the office.



AI-POWERED GIS DASHBOARDS

Operational dashboards for every level of the organisation



Interactive Map

Asset Counts

Defect Heatmaps

Inspection Status

SLA Status

Maintenance Backlog

Risk Zones

Asset Condition

Historical Trends

Before / After Imagery

Department KPIS

Sector Comparison

Views are role-scoped: field supervisors see their sector's workload, department heads see performance across sectors, and command centre sees the whole operational picture.



DIGITAL TWIN UAE · 3D GIS

Digital Twin & 3D GIS

A live 3D representation of the built environment — buildings, roads, utilities and assets — combining GIS, BIM and IoT streams into a single operational model for command-centre decision-making.

BUILDING · IoT LINKED

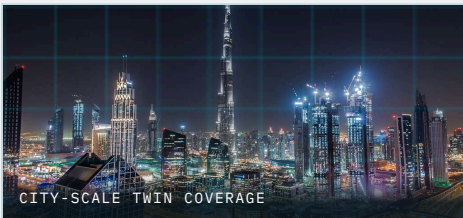
AI ANOMALY

DIGITAL TWIN SCOPE

2D & 3D City Visualisation One model, both views.	Buildings Footprints to full massing.	Roads Network and geometry.	Utilities Above and below ground.	Infrastructure Assets Located in 3D context.	Indoor & Outdoor GIS Continuous inside to out.
BIM + GIS Design meets location.	IoT Sensor Integration Live device telemetry.	Real-Time Operational Layers Current state on the model.	AI Anomaly Detection Deviations surfaced early.	Command-Centre Views Shared situational picture.	Scenario Review Compare planned vs actual.



SAMUI SMART CITY COMMAND CENTRE
SMART CITY COMMAND CENTRE



CITY-SCALE TWIN COVERAGE

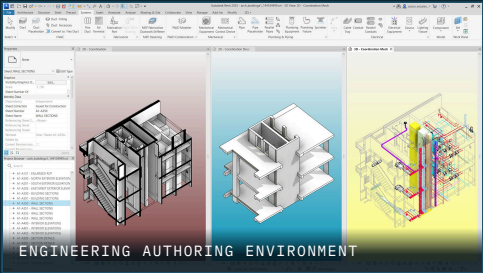


BIM MODEL IN GEOSPATIAL CONTEXT

BIM GIS INTEGRATION UAE · AUTOCAD & REVIT GIS INTEGRATION

GIS + AutoCAD + Revit + BIM

Engineering and geospatial teams work on the same reality. Design files, survey data and asset databases stay aligned through controlled conversion, transformation and validation — not manual re-drawing.



DESIGN-TO-ASSET WORKFLOW

01 GIS Planning	02 AI Design Assistance	03 AutoCAD / Revit Engineering	04 Field Validation	05 GIS Update
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Coordinate Transformation Local engineering grids reconciled with the authoritative spatial reference.	Asset Synchronisation Design objects mapped to asset records with stable identifiers.	Layer Conversion CAD layers translated to GIS feature classes and back.
Engineering Drawing Integration Drawings accessible from the map feature they describe.	Geospatial Validation Geometry, topology and attribute checks before publication.	Design vs Site Comparison As-designed compared against as-built field evidence.

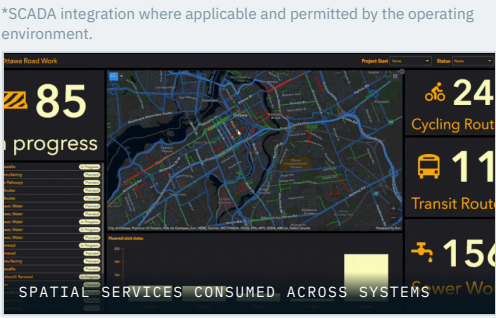
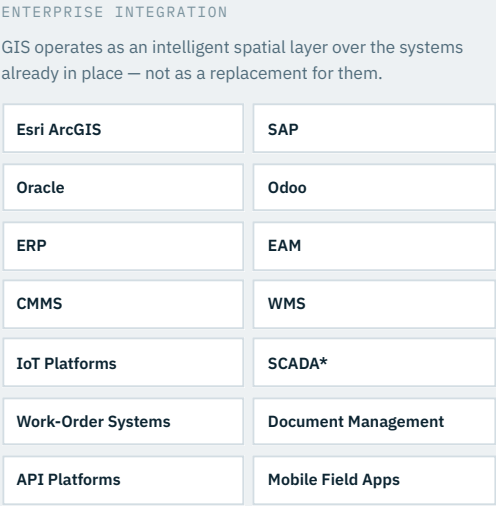
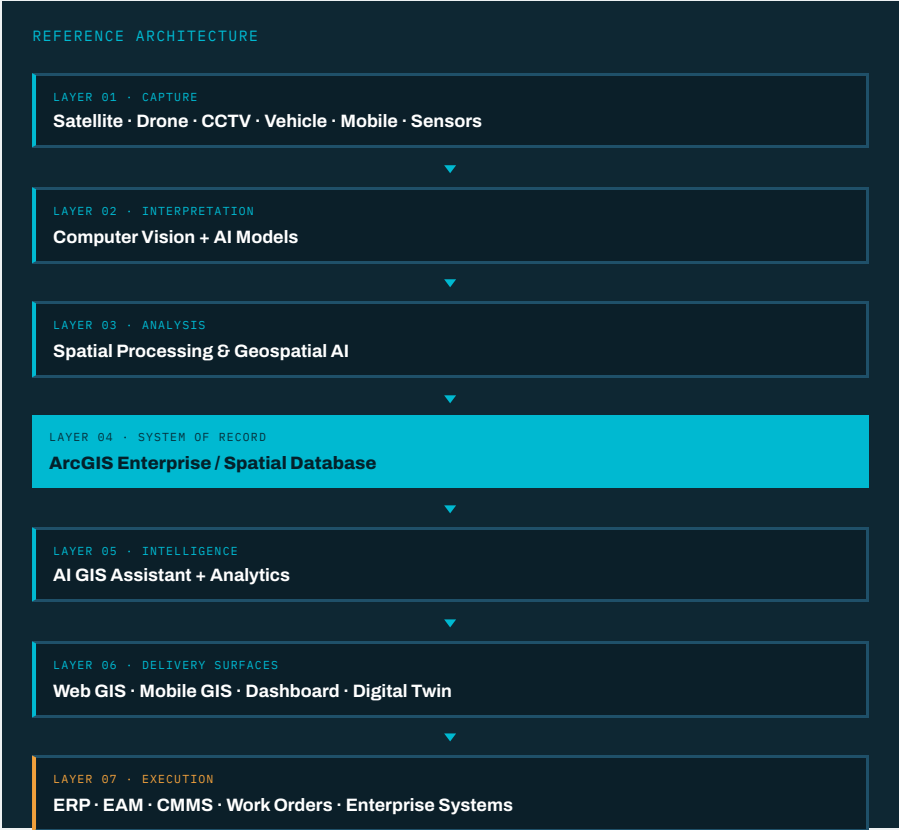
CONNECTED DESIGN & DATA SOURCES

ArcGIS / Esri	AutoCAD	Revit	BIM	CAD Drawings	Survey Data	Asset Databases
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Integration is bidirectional and version-controlled — engineering teams keep working in their authoring tools while GIS remains the authoritative record of what exists on the ground.

AI GIS Architecture

A layered architecture: capture at the edge, AI interpretation, spatial processing, an authoritative enterprise GIS core, then delivery to the surfaces people actually work in — and onward into the enterprise systems that execute the work.



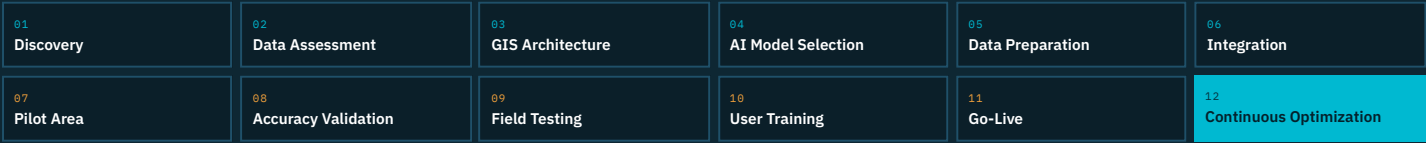
DEPLOYMENT OPTIONS

- On-premise deployment within customer facilities
- Private cloud tenancy
- Hybrid — sensitive layers local, scale in cloud
- Enterprise cloud
- Restricted / air-gapped network environments where required
- Private AI models operated for the customer
- Customer-controlled GIS infrastructure and data residency

SECURITY & GOVERNANCE

Role-based access	User permissions	SSO
Audit trails	Layer-level access	Secure APIs
Data ownership	Backup & recovery	Controlled data sharing
On-premise option		

IMPLEMENTATION WORKFLOW



EXAMPLE CASE STUDY · ILLUSTRATIVE SCENARIO

AI ROAD ASSET INSPECTION

Challenge

Large road networks require continuous inspection, while field observations may come from multiple vehicles, inspectors and camera systems.

Solution

AI computer vision, GPS data, GIS and spatial analytics combine to detect road defects and infrastructure assets, geolocate observations and publish results to an enterprise GIS dashboard.

Example workflow

Road Camera > AI Detection > GPS / Spatial Matching > GIS Feature > Inspection Record > Work Order

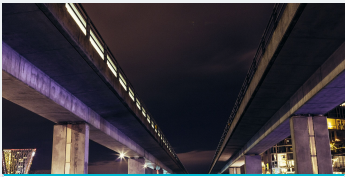
Benefits

- Faster asset discovery
- Reduced manual GIS entry
- Improved inspection consistency & infrastructure visibility
- Centralized geospatial decision support

BEST-FIT USE CASES ACROSS SECTORS

Where AI GIS delivers first

Each sector starts from a different asset base and operating rhythm — the platform configuration follows the sector, not the reverse.



Municipalities

Roads, public assets, inspection programmes and urban planning — with sector-level defect reporting and prioritised maintenance.



Transport Authorities

Road assets, traffic infrastructure and route intelligence across corridors, with condition tracking at network scale.



Utilities

Electricity, water and telecom network assets — mapped, inspected and synchronised with EAM and work-order systems.



Construction

Progress monitoring, BIM/GIS alignment and site inspection — comparing as-designed against as-built evidence.



Oil & Gas

Pipelines, facilities and distributed field assets — corridor monitoring, encroachment detection and inspection records.



Real Estate

Property intelligence and facility mapping — indoor and outdoor GIS across portfolios and managed estates.



Smart Cities

IoT estates, digital twins, command centres and AI analytics unified on one authoritative spatial layer.



Environment

Land, vegetation and environmental monitoring with automated change detection across imagery passes.

NEXT STEP

Turn Your Maps into Intelligent Decision Systems

Start with a defined pilot area and a measurable inspection objective. We assess your current GIS estate, agree the architecture and validate accuracy on your own data before scaling.

01

Request AI GIS Demo

02

Book a Geospatial Workshop

03

Start a Smart City Pilot

04

Request GIS & AI Assessment

PORTFOLIO RECAP

AI-powered spatial analysis	Computer vision + GIS	Smart asset mapping	Location intelligence
Satellite, aerial & drone	Natural language GIS assistant	Digital twin & 3D GIS	BIM / CAD integration

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ENQUIRIES

AI GIS demo · geospatial workshop · pilot scoping