



Tigernix Road Intelligence Software Suite

Industry 4.0-Powered Digital Platform
for Road Infrastructure

Introduction

Uniting Road Management with Industry 4.0 Standards at a Glance

Tigernix Road Intelligence Suite is an integrable, Industry 4.0-enabled platform purpose-built for road managers seeking superior visualisation, streamlined operations, and an optimal balance of asset risk, cost, and performance. The suite empowers professionals with advanced digital tools and AI-driven insights for the management of highways, roads, bridges, and related infrastructure—all from a single, unified interface.



Smarter, Greener and Safer
Roads for Your Cities

@ Tigernix Smart Road Solutions

Industry 4.0 Capabilities We Offer

- GIS
- IoT
- AR & VR
- Predictive & Prescriptive Analytics
- 5G
- Cloud Computing
- Robotic Automation
- Digital Twin
- Simulation
- Big Data



Why Choose Tigernix?

Tigernix unifies these technologies, enabling seamless monitoring, predictive analytics, automated workflows, real-time alerts, scalable integration, and continuous operational optimisation. This transforms traditional road management into a truly smart operation. With its cloud-native architecture, it centralises asset telemetry, process analytics, and compliance data, enabling intelligent, data-driven decisions and sustainable, system-wide efficiency.



Shorter Road Investigation,
Lightning Fast Analytics and Best
Data-driven Decisions at Your
Doorstep

Robust Features of Tigernix Road Intelligence Software Suite

Comprehensive Risk-Cost-Performance Balance

- Optimises urgent repair budgets
- Prioritises by asset criticality
- Supports sustainable road networks

User-Centric Design

- Empowers confident decision-making
- Customisable role-based dashboards
- Automated timely alerts

Future-Proof and Scalable

- Adapts to new technologies
- Scalable for long-term use
- Integrates emerging innovations

Real-Time Centralised Data and Fast Decision-Making

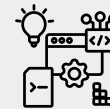
- Unifies IIoT and CCTV data
- Instant asset and operations access
- Accelerates responsive decisions

Transparent Investment and Compliance

- Scenario-based investment forecasts
- AI-driven compliance tracking
- Plain-language stakeholder reports

Proactive Asset Health and Disaster Resilience

- Predictive maintenance forecasting
- GIS-based disaster risk analytics
- Enables proactive threat responses



Industry 4.0
Integration



Executive-Ready
Insights



Predetermined Data-
Driven Decisions



Immersive
Visualisation

System Capabilities

4D Digital Twins with AR/VR

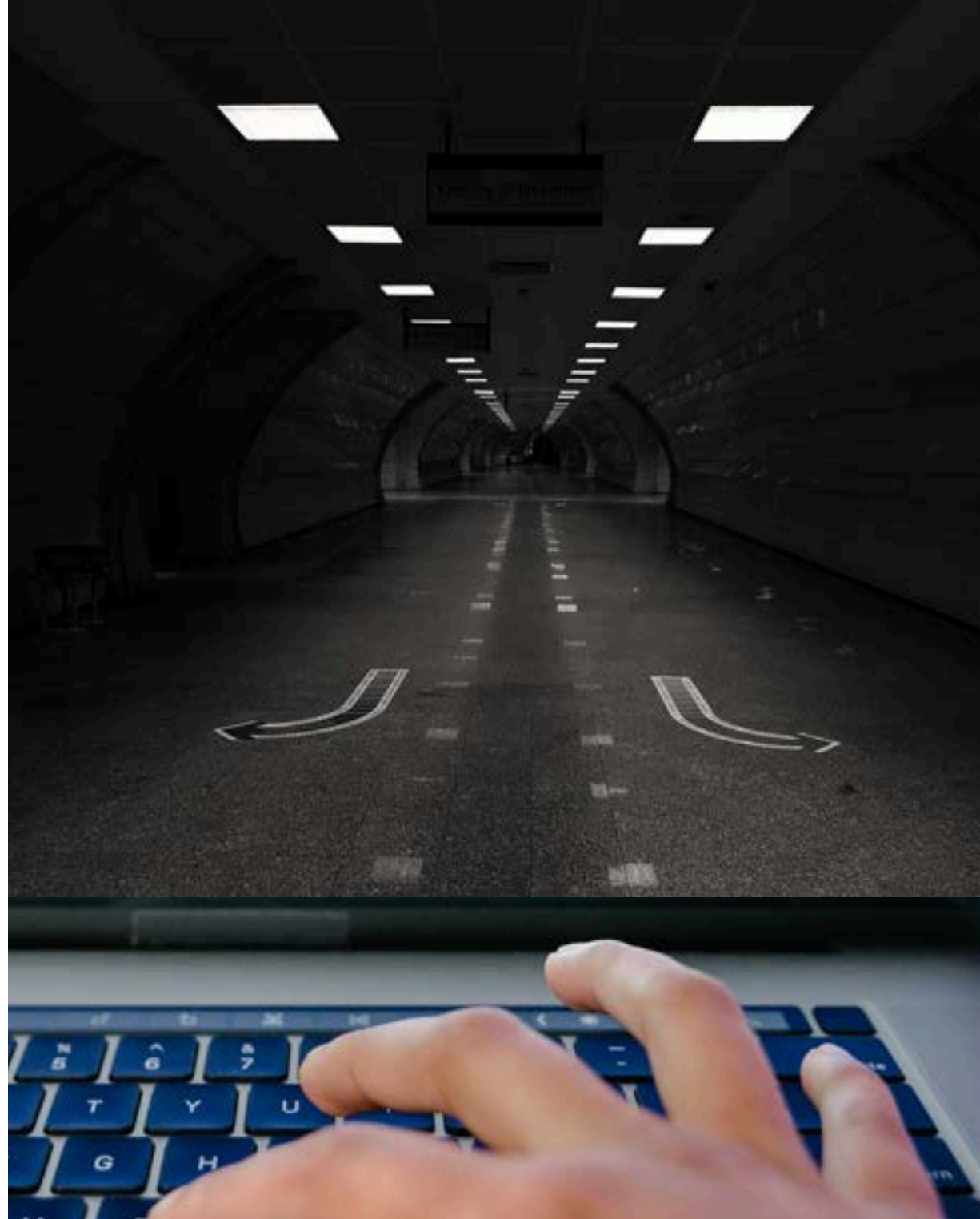
Immersive, real-time visualisation of road assets and conditions using 4D digital twins combined with AR/VR technology. Enables intuitive scenario modelling, enhanced situational awareness, and interactive infrastructure planning for smarter decision-making.

AI & Machine Learning

Advanced AI and machine learning algorithms predict asset health, assess risk, and forecast maintenance needs. These insights optimise resource allocation, reduce failures, and enable proactive infrastructure management.

Cloud Computing & Real-Time Data Streaming

Cloud-native architecture ensures instant access and synchronisation of road data from multiple sources. Real-time streaming enables continuous monitoring, rapid data processing, and seamless collaboration across teams and





System Capabilities

GIS Mapping & Spatial Analytics

Elastic GIS maps provide spatial visualisation of road networks and assets. Integrates disaster risk analytics and urbanisation data to support strategic planning, risk mitigation, and infrastructure resilience.

IIoT Sensors & Devices

Deploys a network of IIoT sensors, CCTV, drones, and laser scanners for continuous, high-accuracy data collection. Minimises human error and enables automated, real-time condition monitoring.

Predictive & Prescriptive Analytics

Combines predictive models with prescriptive recommendations to forecast maintenance schedules and prescribe optimal interventions. Supports data-driven budgeting and reduces unexpected infrastructure failures.

System Capabilities

Robotics for Remote Inspection

Utilises robotics technologies such as CCTV, drones, and laser scanning for automated, remote asset inspections. Enhances safety, reduces inspection costs, and improves data accuracy.

Automated Alerts & Early Warning Systems

Proactively detects anomalies and emerging issues, sending automated alerts to managers. Enables timely interventions, minimises downtime, and enhances operational responsiveness.

Criticality Tagging

Classifies road assets by criticality levels from 'Very Poor' to 'Very Good'. Helps prioritise maintenance and investment decisions based on condition and risk.





System Capabilities

Customisable Dashboards

User-centric dashboards tailored to different roles and preferences. Presents relevant KPIs, visual analytics, and reports to empower confident, efficient decision-making.

Dynamic Investment Forecast Engine

Delivers scenario-based financial forecasts and investment planning tools. Integrates predictive analytics and cost-benefit models to optimise capital allocation and long-term budgeting.

Integrated Disaster Risk Mitigation

Combines GIS, sensor data, and climate analytics to assess and mitigate risks from natural hazards. Supports proactive infrastructure protection and public safety strategies.

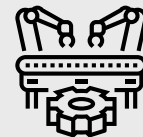
Key Challenges & Solutions

Tigernix Road Intelligence Suite leverages AI-driven machine learning and predictive analytics to assess asset risk and forecast maintenance. Integrated IIoT sensors and robotics provide continuous, accurate data, enabling proactive, automated operations that optimise road infrastructure performance and investment decisions.



AI-Driven Asset Risk and Performance Management

Machine learning and predictive analytics assess asset condition and criticality, forecasting maintenance needs and optimising investments. Assets are tagged from 'Very Poor' to 'Very Good' to prioritise urgent repairs and allocate budgets effectively.



Smooth Operations with IIoT and Robotics

Continuous, high-accuracy data collection from IIoT sensors, CCTV, drones, and laser scanning robots reduces human error. Automated early warning systems enable proactive maintenance, minimising downtime and extending asset lifespan through timely interventions.



Key Challenges & Solutions

Tigernix Road Intelligence Suite unifies fragmented road data into a single platform, delivering instant, real-time visibility. Elastic GIS mapping and integrated disaster risk analytics empower managers with spatial insights, enabling risk-informed planning, rapid decision-making, and resilient infrastructure protection across all locations.



GIS Mapping and Disaster Risk Mitigation

Elastic GIS maps combined with disaster risk analytics visualise spatial asset data and hazard exposure. This integration supports risk-informed planning, protects infrastructure from natural hazards and urbanisation impacts, and enhances public safety and resilience.



Centralised Data for Faster, Smarter Decisions

Fragmented road data is unified into a single platform, enabling instant access and comprehensive insights. Managers gain real-time visibility across locations, accelerating decision-making, improving resource allocation, and enhancing operational coordination.

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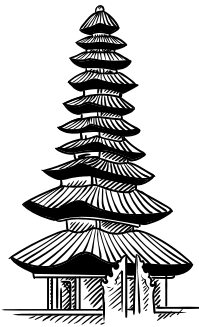
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