Tigernix
We are users too

Tigernix Road Control Tower

An Industry 4.0-driven Hyperconnected Road Decision-support Console

Introduction

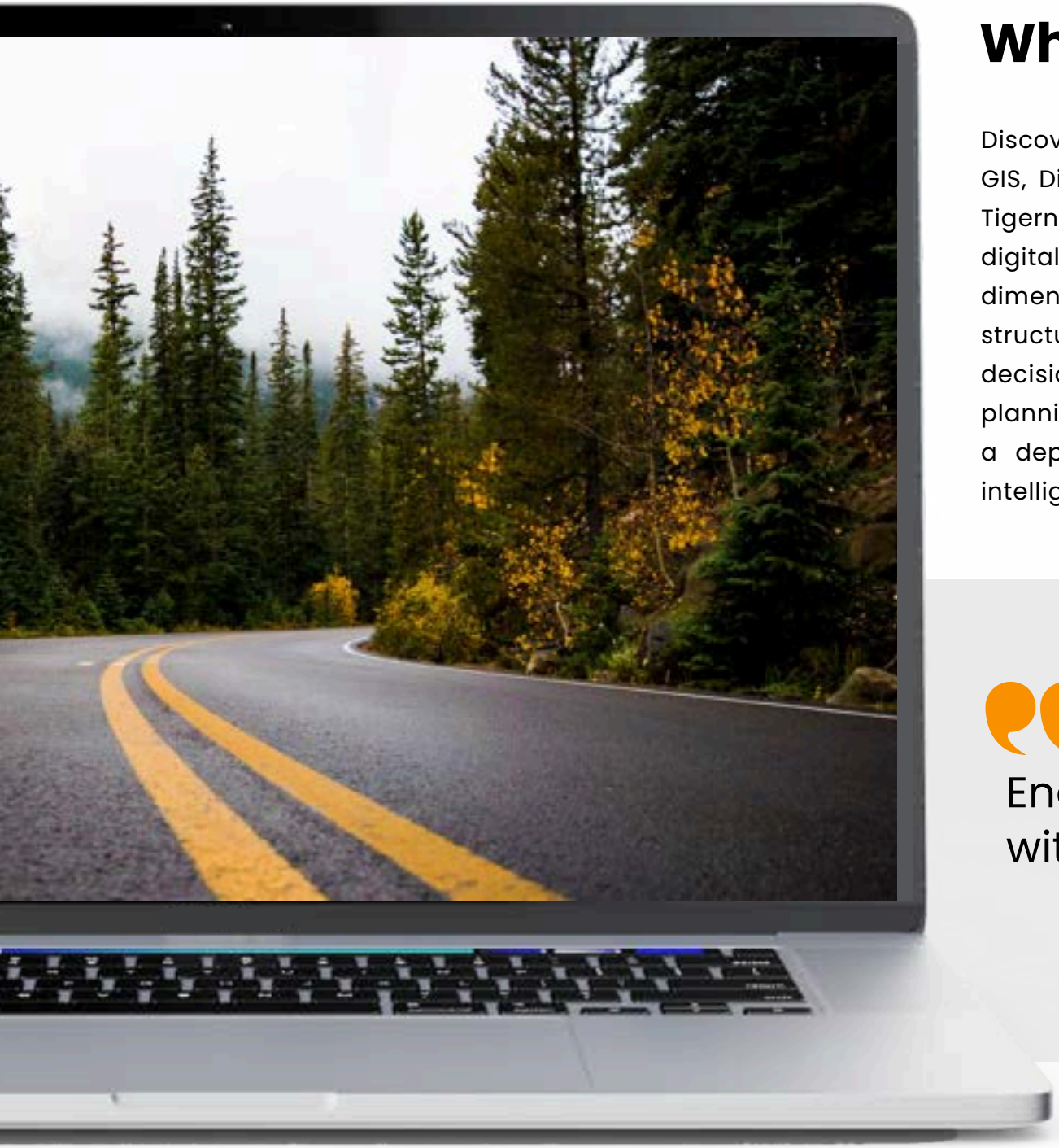
Ignite a New Epoch of Road Governance through Industry 4.0 Digital Frontiers

Tigernix Road Control Tower (TigernixRCT) embodies an avant-garde Command and Control architecture that synchronises complex transportation ecosystems through sophisticated Industry 4.0 capabilities. Delivering seamless coordination and robust data interpretation, our solution optimises traffic safety, asset integrity, and infrastructure strategy within a single, unified video wall framework. This centralised intelligence platform transforms traditional road management paradigms by infusing predictive analytics, operational clarity, and strategic agility into every decision-making process.

> Multi-Layered Industry 4.0 Power Fusion for Supreme Road Control
>
> @ 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?

Discover the future of transport governance where AI, IoT, GIS, Digital Twin, Satellite, and analytics converge within Tigernix unified road control room. This sophisticated digital orchestration integrates all road management dimensions, real-time mobility data, asset inspections, structural insights, and regulation tracking into a cohesive decision-making grid. Leaders gain elevated foresight, planning acuity, and unprecedented command, marking a departure from fragmented legacy systems toward intelligent, centralised operational governance.

> End-to-End Road Optimisation with A Digital Analytical Hub

Robust Features of Tigernix Road Control Room

AI-Powered Traffic Intelligence

- Drone-Based Traffic Flow Mapper
- Predictive Congestion Analytics Engine
- Autonomous Incident Detection Network

Road Asset Lifecycle Digital Twin

- Structural Integrity AI Forecaster
- Drone-Enabled Defect Scanning Module
- Sensor Fusion Health Monitoring Intelligence

Smart Workzone Twin Manager

- Drone, CCTV-Based Worksite Hazard AI Detector
- IoT Safety Compliance Dashboard
- Satellite-Based Workzone Traffic Optimiser

Digital Violation Insight Hub

- AI-Driven License Plate Recognition Bots
- IoT-Based Dynamic Fine Calculation Engine
- Drone Surveillance Violation Mapper

Emergency Response Command AI

- Autonomous Drone Incident First Responder
- AI-Based Evacuation Route Optimiser
- Incident Digital Twin Replicator

IoT Weather Impact Detecting Bots

- Satellite-Based Hazard Early Warning System
- GIS Weather Vulnerability Heatmap
- AI Road Surface Hazard Detector

Futuristic Road Decision Screens

Emergency Features for Risk Mitigation

Insight Consolidation Technology

Easily Disgestible Visualisation

System Capabilities

Multi-Source Decision Intelligence Hub

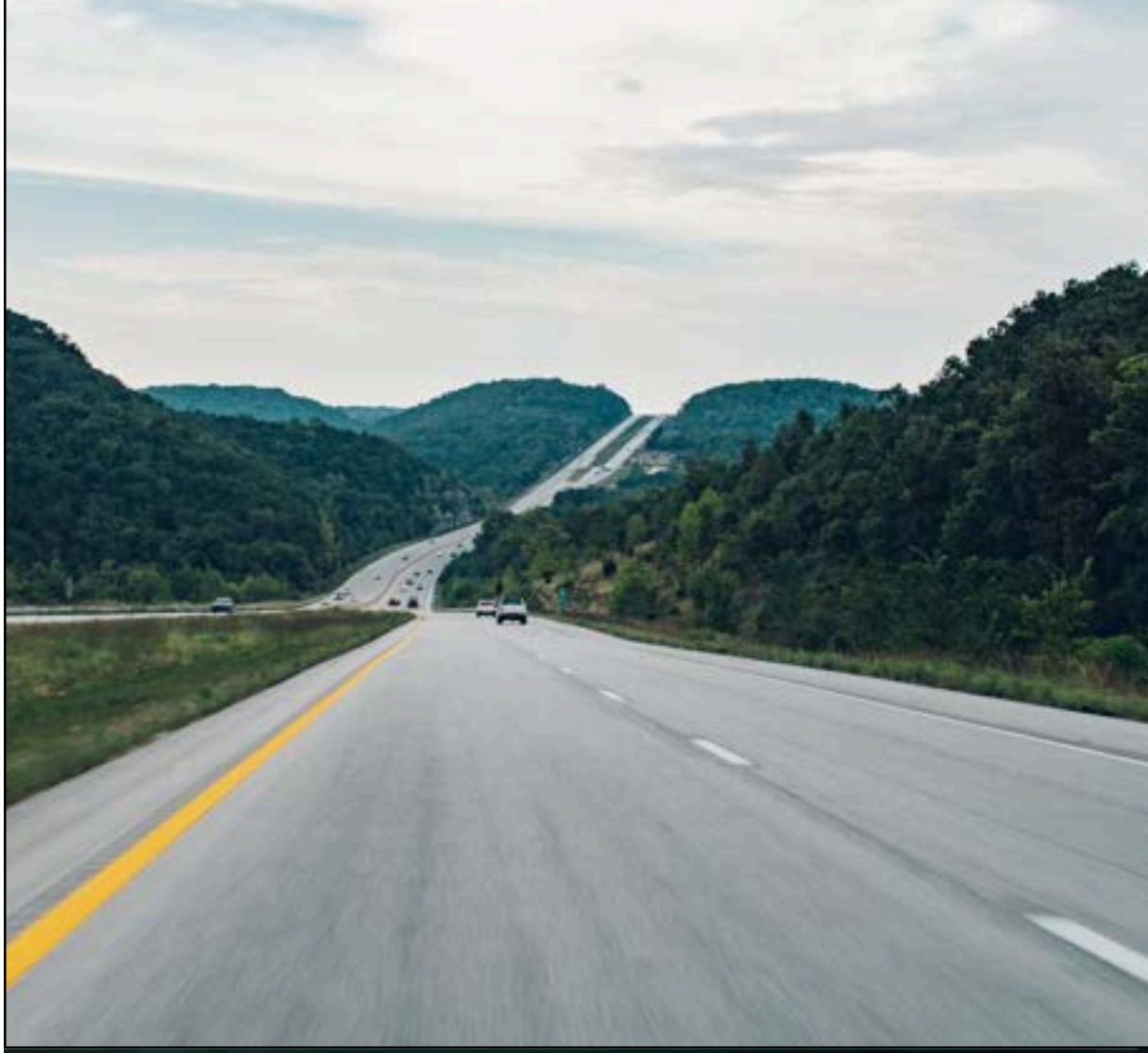
Tigernix Road control panel consolidates inputs from satellite, drone, IoT, CCTV, and radar into a singular executive interface, delivering holistic, multidimensional intelligence to high-level stakeholders on a digital wall.

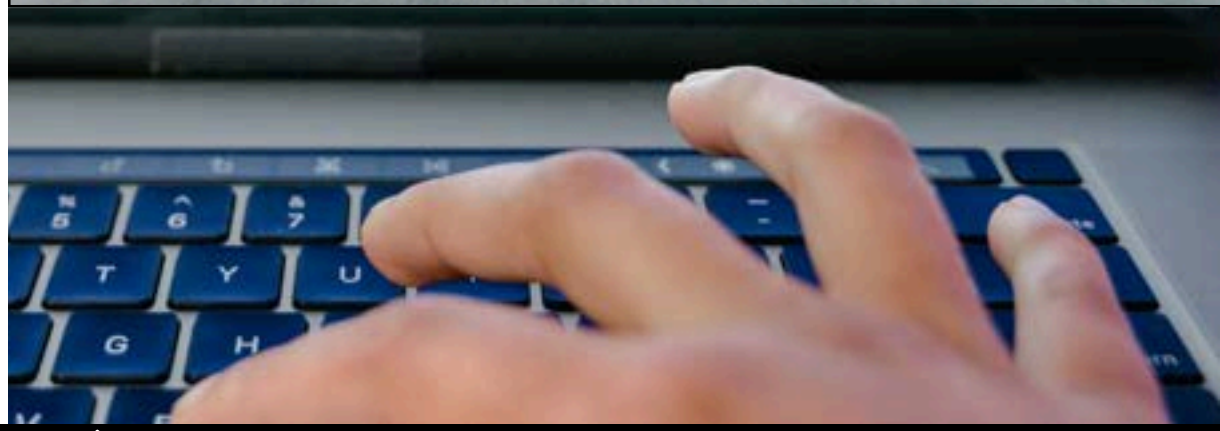
Cognitive Traffic Pattern Synthesis

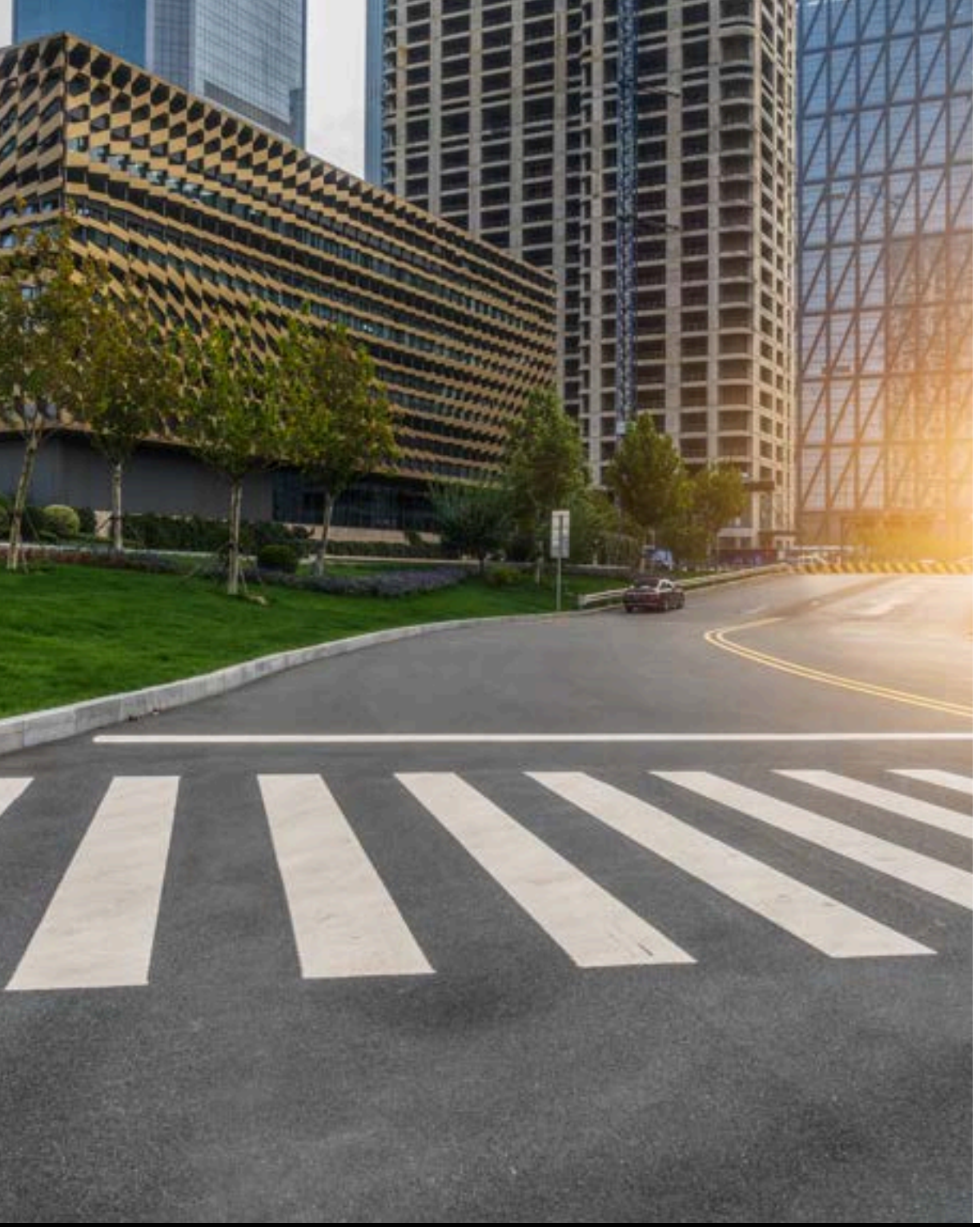
Employs advanced artificial intelligence algorithms to autonomously model, interpret, and forecast multifaceted traffic dynamics, enabling policymakers to dynamically reconfigure infrastructure priorities with precision and foresight.

Digital Twin Urban Replication

TigernixRCT enables a full-scale, data-rich virtual replica of complex road networks by integrating structural, operational, environmental, and behavioural parameters for dynamic policy experimentation and simulated urban planning scenarios.







System Capabilities

Satellite-Augmented Road Risk Mapping

It simply fuses high-resolution satellite imaging with advanced geospatial analytics to continuously assess terrain instability, encroachment risks, and topographical vulnerabilities across remote, peri-urban, and developing road corridors.

Predictive Infrastructure Deterioration Modelling

Utilises advanced machine learning algorithms and IoT sensor telemetry to accurately forecast long-term wear, corrosion, and load stress, enabling proactive maintenance planning and strategic budgetary alignment.

Drone-Enabled Macro Surveillance Framework

This implements an autonomous aerial monitoring system using AI-enabled drones to deliver real-time macro and micro insights into road environments, construction zones, and incidents for executive-level oversight.

System Capabilities

GIS-Driven Strategic Asset Allocation Grid

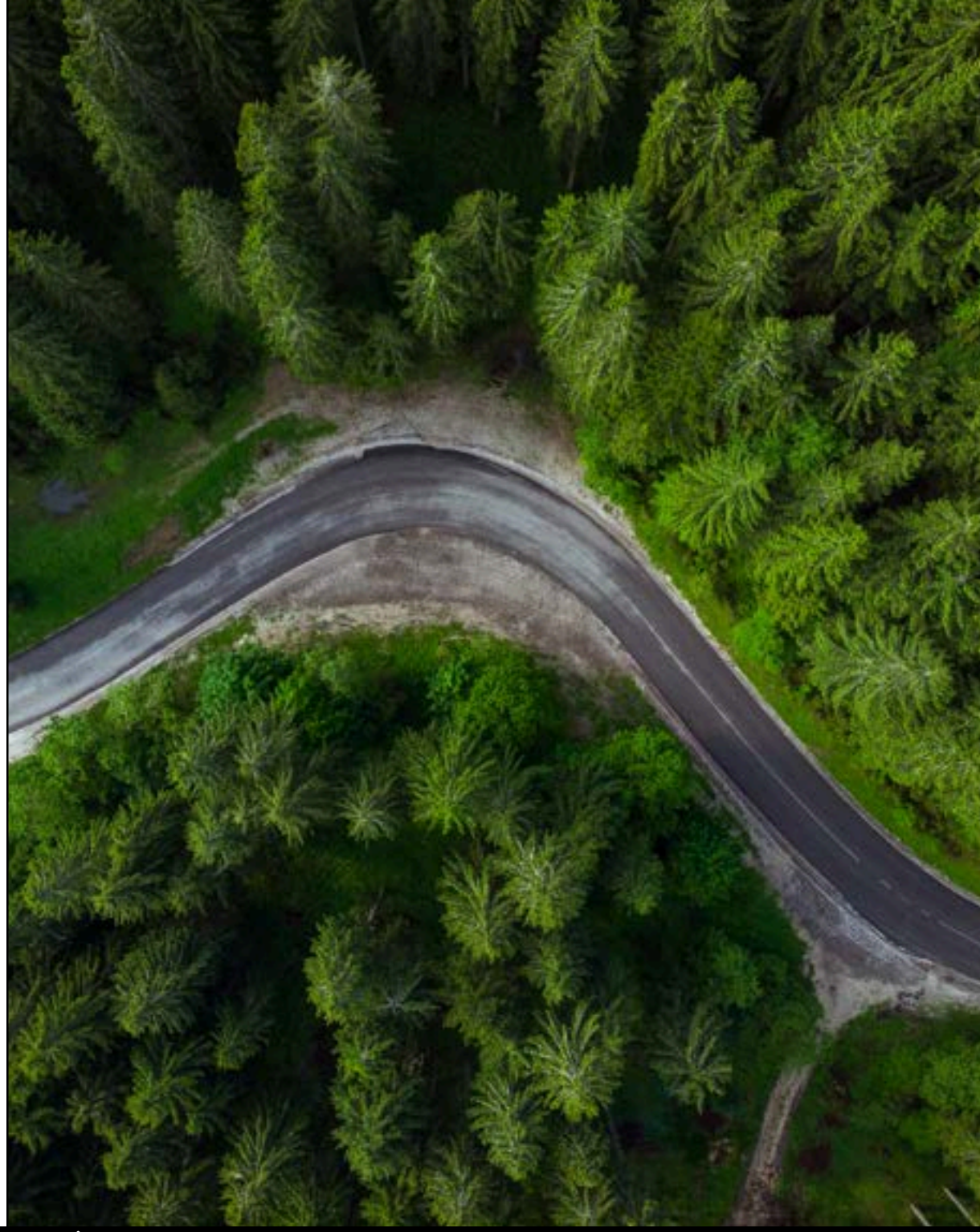
Our control tower integrates multi-layered GIS data with advanced asset lifecycle analytics to strategically optimise budget allocation, resource deployment, and region-specific infrastructure investments through enriched spatial intelligence.

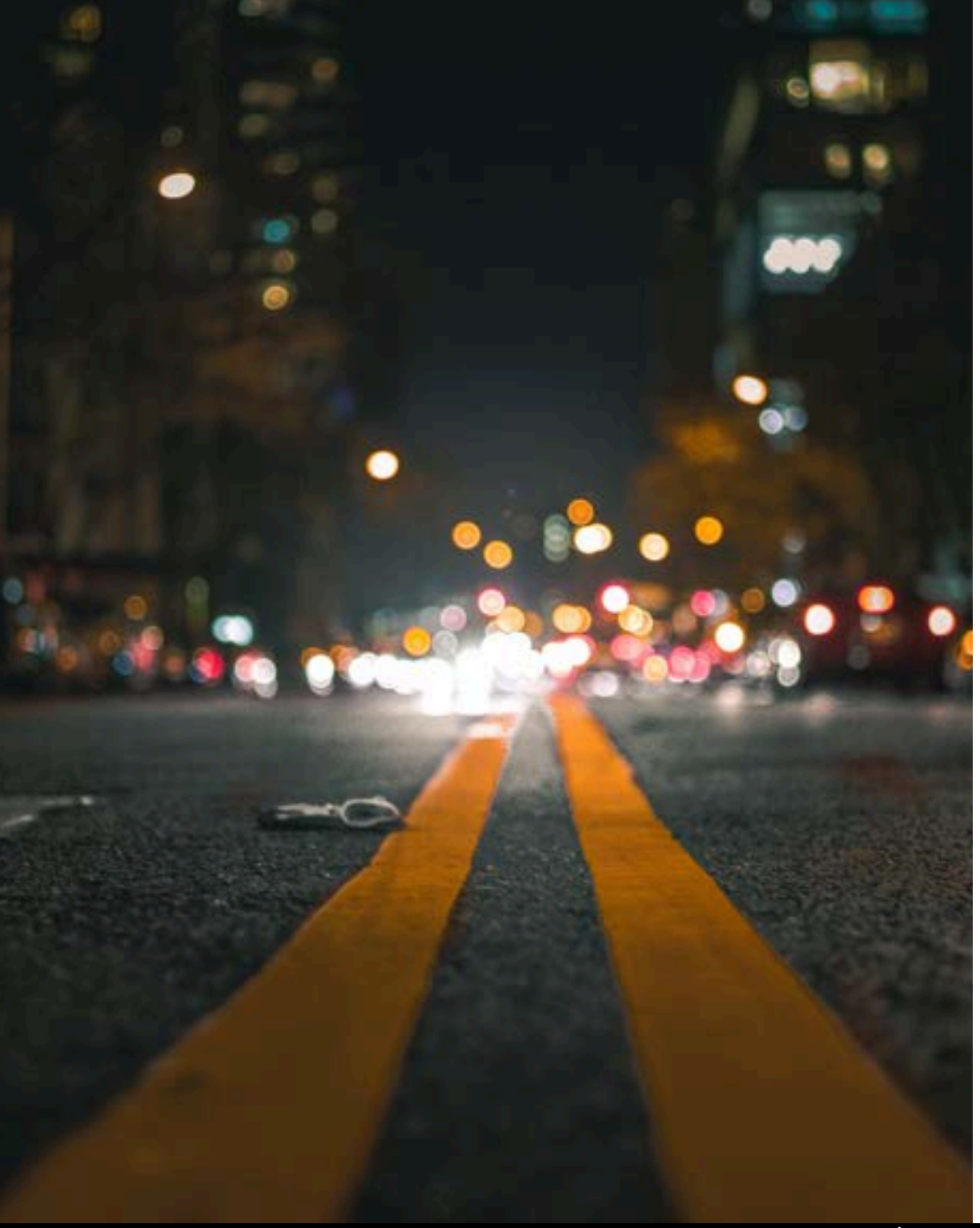
Real-Time Congestion Evolution Dashboard

Visualises dynamic congestion morphologies through real-time AI and IoT data fusion, empowering decision-makers to simulate future urban flow scenarios and refine traffic governance and legislation frameworks.

VR-Based Policy Impact Simulation

This presents immersive virtual walkthroughs of hypothetical infrastructure modifications, environmental transitions, or policy implementations, equipping stakeholders with predictive foresight.





System Capabilities

AI-Powered Violation Heat Index

TigernixRCT generates advanced violation heatmaps by synthesising data from radar, CCTV, and LPR systems, enabling policymakers to recalibrate enforcement zones and design targeted behavioural reform strategies.

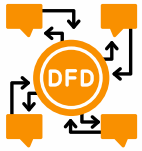
Autonomous Emergency Scenario Emulator

Simulates comprehensive emergency response strategies within digital twin environments using AI-driven incident propagation models, significantly enhancing resilience planning, inter-agency coordination, and real-time strategic contingency preparedness.

Sensor-Fused Legislative Compliance Monitor

Verifies compliance of ongoing construction and maintenance operations with national safety and engineering standards by employing real-time data streams from its IIoT-enabled sensors and intelligent digital twin systems.

5-Phase Framework



Data Flow

- Integrates data via APIs and cloud platforms (RESTful APIs, IBM Integration Bus, MuleSoft, AWS IoT Core, Azure IoT Hub, ESRI ArcGIS, weather APIs).
- Centralises data from multiple sources for unified processing.

Data Process

- Aggregates and processes data using IoT, 5G, edge devices, and Industry 4.0 tools.
- Utilises AI, machine learning, big data (Hadoop, Spark), blockchain, digital twins, and stream processing (Kafka, Flink).

Data Visualisation

- Displays data on live dashboards, thematic maps, graphs, and automated reports.
- Offers 3D mapping, simulations, geospatial heat maps, satellite overlays, and collaborative dashboards.

Data Capture

- Connects to diverse sources: hydrological models, meteorological services, SCADA, sensors, satellite data, GIS, gauges, and monitoring stations.
- Collects comprehensive road, weather, and environmental data.

Data-Driven Decision-Making

- Centralises all data for quick analysis and response.
- Supports decisions in road distribution, sustainability, flood forecasting, climate adaptation, public safety, and financial planning.

Key Challenges & Solutions

Tigernix Road Control Tower leverages cutting-edge Industry 4.0 AI to autonomously detect and analyse road incidents, revealing hidden patterns and root causes behind recurring failures. Through real-time emergency heatmaps and advanced analytics, transportation leaders gain unprecedented visibility into bottlenecks and delays. This actionable intelligence empowers agencies to optimise emergency response protocols and drive meaningful legislative reforms.

Autonomous Incident Intelligence for Legislative Reform

When transportation leaders searched for reasons behind recurring failures, traditional methods offered only fragments. Since our Industry 4.0-powered solution embeds AI-driven incident detection, it illuminates hidden patterns, mapping bottlenecks and delays. Armed with real-time insights, leaders can finally reimagine emergency protocols and reform outdated safety laws.

Cross-Agency Coordination Optimisation

In times of crisis, disjointed communication cripples response efforts. With the advent of Tigernix's AI-powered control room, transportation and municipal agencies finally speak the same language. Unified dashboards create swift, cohesive strategies, strengthening both immediate disaster response and visionary policymaking.

Key Challenges & Solutions

Advanced NLP algorithms in our control room automatically convert complex technical data-such as telemetry, diagnostics, and predictive models-into clear, concise executive summaries. This empowers policymakers with actionable, easily digestible insights, bridging the gap between technical reports and governance language for transparent, informed decision-making and improved public communication.

Translating into Governance Language

Using advanced NLP algorithms and auto-generated summaries, our control room seamlessly translates complex telemetry, diagnostic data, and predictive models into clear, concise executive briefs. This empowers policymakers with easily digestible insights, enhancing public communication and providing clarity for transparent governance decisions.

Policy-Grade Infrastructure Visualisation

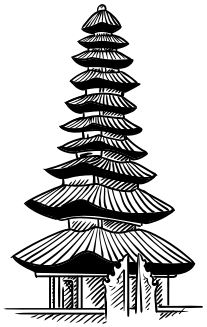
The software seamlessly integrates CAD blueprints with GIS topology, offering decision-makers a comprehensive, policy-ready visual representation of infrastructure integration. Our powerful console enhances decision-making by promoting better-informed approvals while ensuring spatially contextualised, efficient, and future-ready urban governance strategies.

CONTACT TIGERNIX

Singapore (Headquarters)

21, Woodlands Close,
#05-47 Primz Bizhub
Singapore 737854

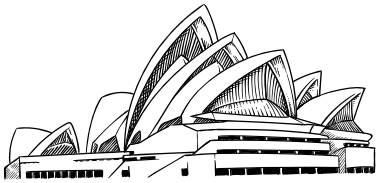
+(65) 6760 6647
+(65) 6760 6012
+(65) 6762 9293
+(65) 6760 6022



Indonesia

Komp. Tanah Mas Blok E No.
13-14, Sei Panas, Batam
(Samping Bank Riau Kepri)
Indonesia

+(62) 7784 60373



Australia

Level 14, 167 Eagle
Street, Brisbane,
Queensland 4000,
Australia

+(61) 7 3012 6312