Tigernix
We are users too

Tigernix Wastewater Collection Solution

Cognitive Monitoring Platform for Wastewater Collection Network

Introduction

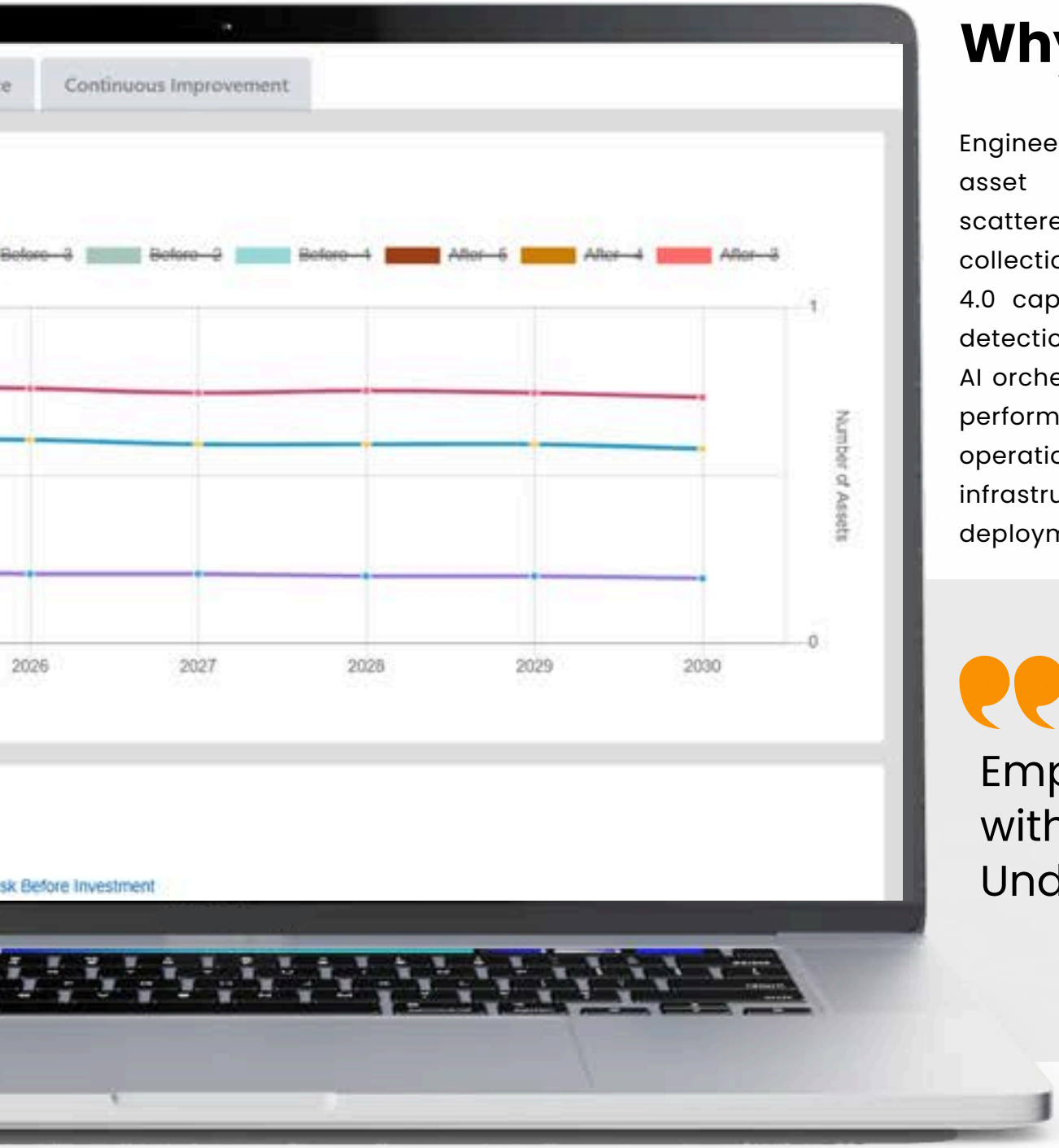
Industry 4.0 Driven Intelligence Core for Wastewater Collection Framework

Tigernix Wastewater Collection Solution introduces a comprehensive Industry 4.0-aligned asset intelligence and data management platform, incorporating hydraulic system modelling, pipeline monitoring technologies, infrastructure data analytics, and maintenance intelligence tools into one visualised dashboard. This advanced configuration empowers utilities with autonomous operational oversight, data-integrated lifecycle management, and high-speed predictive insights, driving transformation across all aspects of wastewater collection with accuracy, scalability, and performance reliability, all under one smart screen.

> Smartest Wastewater Collection Data Monument for Forward-Thinkers
>
> @ Tigernix Smart Wastewater 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?

Engineered to redefine conventional wastewater collection asset management, Tigernix smart platform unites scattered data from pumping stations, pipelines, and collection basins into a centralised digital wall. Its Industry 4.0 capabilities facilitate deep analytics, predictive fault detection, and real-time process automation. With built-in AI orchestration, our solution delivers lifecycle visibility and performance optimisation, surpassing traditional operational limits and supporting 15 years of sustainable infrastructure management through intelligent resource deployment and digitally integrated workflows.

> Empowering Wastewater Utilities with Industry 4.0 Intelligence-All Under One Dashboard

Robust Features of Tigernix Wastewater Collection Solution

Centralising Multi-Location Data into One Cyber-Space

- Cloud-Orchestrated Data Unification
- Unified Sensor Stream Integration via Cyber Grid
- Infrastructure Insights via Smart Dashboard

Powered by Industry 4.0 Digital Capabilities

- Predictive Maintenance Algorithms
- Prognostic Failure Analysis and Simulation
- Self-Healing Network Protocols with IoT Sensors

Digital Twin Multi-Scenario Modelling & Simulations

- Predictive Modelling for Infrastructure
- Simulated Risk & Impact Analysis
- Integrated Weather Intelligence Models

Cross-Dimensional Analytical Intelligence Framework

- Cross-Dimensional Fault Diagnosis and Resolution
- AI-Driven Collection Asset Capacity Planners
- GIS & Satellite Driven Flood Risk Analysis

Cross-Asset Predictive Maintenance Engine

- Sensor-Based Asset Vibration Analysis
- Smart Analytics for Pipeline Integrity Forecasting
- Analysis for Long-Term Asset Monitoring

AI-Powered Strategic Investment Planner

- Capital Allocation Analytical Report Generators
- Automated Investment Scenario Simulation
- Asset Portfolio Evaluation Using CRP Framework

Smart Wastewater Collection System

Faster Collection Tank Optimisation

Smart Dashboards for Collection Operation

Intelligent Decisions During Hazardous Situations

System Capabilities

Cyber-Physical Asset Integration

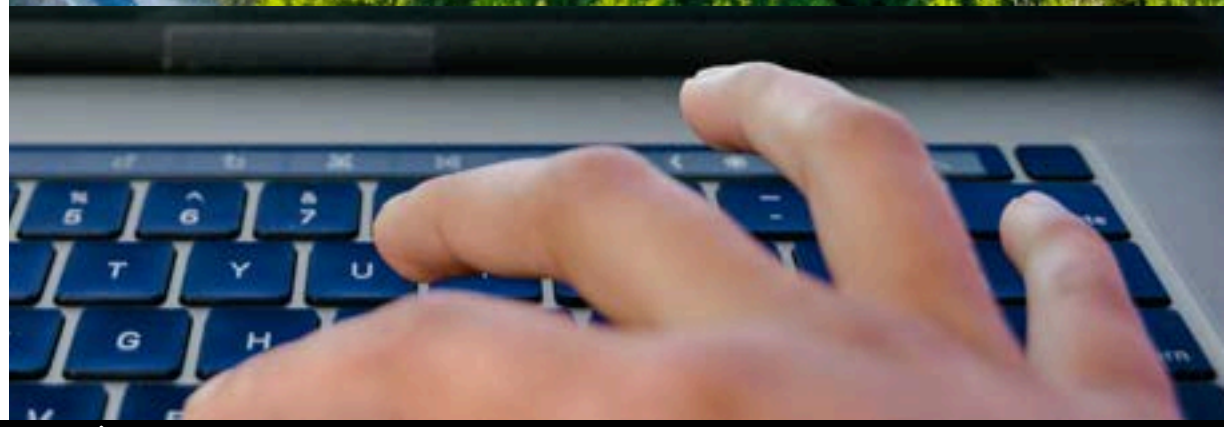
Our solution couples with advanced telemetry and cyber-physical interfaces to transmit operational data from basins, pipelines, and pumps into a centralised AI-driven digital environment.

3D Centralised Asset Visualisation

Since the Tigernix solution integrates GIS and 3D modelling engines, this renders real-time visual replicas of all collection assets, enabling intuitive spatial awareness and digital navigation.

AI Predictive Maintenance Engine

Our digital platform employs ML and AI to detect performance anomalies, predict component wear, and optimise maintenance cycles through intelligent lifecycle management strategies.



System Capabilities

Real-Time SCADA Pipeline Monitoring

Our advanced software integrates SCADA with IoT sensors to stream live pressure, flow, and temperature data, enabling instant detection of pipeline anomalies and system inefficiencies.

Sensor-Based Asset Diagnostics

Its embedded multi-sensor arrays collect vibration, flow, and pressure data 24/7, enabling AI to assess asset health and diagnose faults based on real-time operational signatures.

Overflow & Surge Simulation

Our system's integrated weather forecasting and hydraulic simulation tools anticipate storm-induced surges, triggering early warnings and dynamic control actions across the wastewater collection system.

System Capabilities

Geospatial Infrastructure Intelligence Mapping

Drone-acquired imagery and LiDAR scans integrate with digital twins, creating interactive 3D infrastructure maps enriched with live sensor data for in-depth spatial diagnostics.

ML-Driven Smart Failure Mode Analysis

The platform's ML framework continuously improves failure mode analysis by learning from operational data, ensuring proactive identification and resolution of emerging risks in wastewater collection assets.

AI Capital Deployment Strategy

Our AI-based decision frameworks integrate predictive models and operational analytics, facilitating informed capital expenditure decisions and balancing cost efficiency and long-term network performance.

System Capabilities

ESG Compliance Analytics Framework

Our system's AI-driven analytics synthesise operational, environmental, and regulatory data to assess ESG alignment, enabling continuous compliance and ensuring corporate accountability within wastewater management.

AI Hydraulic Input Recalibration

Through its AI-powered iterative algorithms, Tigernix system recalibrates hydraulic inputs based on real-time telemetry, integrating predictive models and sensor data to enhance system stability and fluid dynamics.

Hybrid Resilience Forecasting Engine

The platform integrates multi-model data streams with hybrid AI models, employing stochastic and deterministic algorithms to forecast system resilience, adapting to dynamic environmental and operational perturbations.

Key Challenges & Solutions

Tigernix's advanced platform overcomes these pitfalls by deploying sensor-integrated AI frameworks that continuously ingest live operational data, detecting micro-failure signals and activating predictive mitigation workflows to reduce repair costs, extend asset lifecycles, and ensure uninterrupted wastewater network integrity. By integrating real-time sensor data with advanced Computational Fluid Dynamics (CFD) simulations, Tigernix enables precise forecasting of flow rates and pressure variations, greatly improving flood risk prediction and wastewater flow management.

Advanced Computational Fluid Dynamics (CFD) Integration

Conventional systems struggle with outdated hydraulic models, misjudging flow rates and pressure variations. Since we integrate real-time sensor data into CFD-based simulations, our software enables accurate forecasting of system behaviour, ensuring better prediction of flooding risks and precise wastewater flow management.

Neuro-Predictive Maintenance Ecosystem for Infrastructure Resilience

Outmoded systems amplified asset decay through delayed responses. Tigernix advanced platform utilises sensor-integrated AI frameworks, ingesting live operational variables to identify micro-failure signals, enabling predictive mitigation workflows that sharply curtail repair costs, enhance lifecycle planning, and uphold uninterrupted wastewater network integrity.

Key Challenges & Solutions

Tigernix Wastewater Collection Solution introduces a next-generation platform that embeds AI-centric orchestration, robotic process automation (RPA), and decentralised decision engines to autonomously execute control routines, eliminate manual dependencies, and drive intelligent cost restructuring across distributed plant operations. By leveraging cognitive workflow decentralisation, the system enables exponential cost abatement while its holo-integrated reporting architecture unifies edge analytics, digital twinning, and AI-enriched visualisation to deliver seamless, cross-dimensional insights.

Workflow Decentralisation for Exponential Cost Abatement

Traditional models demanded constant human oversight. Understanding this challenge, we developed a platform to embed AI-centric orchestration layers with RPA and decentralised decision engines to autonomously execute control routines, nullify manual dependencies, and facilitate intelligent cost restructuring in distributed wastewater plant operations.

Holo-Integrated Reporting Architecture

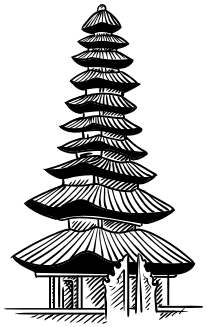
Since we understand that traditional systems failed in cohesive insight generation, we introduce a holo-integrated reporting architecture, blending edge analytics, digital twinning, and AI-enriched visualisation layers to deliver seamless cross-dimensional analytics, yielding hyper-contextualised intelligence across hydraulic, environmental, and infrastructural data verticals.

CONTACT TIGERNIX

Singapore (Headquarters)

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

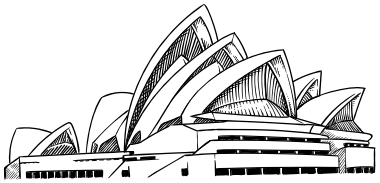
+(65) 6760 6647
+(65) 6760 6012
+(65) 6762 9293
+(65) 6760 6022



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