

MODEL PHYSICAL ASSETS & PROCESSES INTO ACTIONABLE DIGITAL INTELLIGENCE

PRODUCT OVERVIEW

Edge DataTwin turns governed, streaming operational data into a live, graph-based model of assets, systems and processes. Consuming ISO 42001-ready streams from EdgeGuardian, it establishes real-world relationships, giving analytics and AI a shared operational truth.

PROBLEM

Missing Context



Organisations have access to telemetry but often lack a coherent way to represent how assets, components, variables, and processes actually relate to one another.



Superficial Dashboards

Dashboards may show what is happening, but they rarely explain how the system behaves as a whole.



Disconnected Data

Organisations often work from disconnected data points rather than a model reflecting the physical world's relationships and dependencies.

SOLUTION

How EdgeDataTwin Works

1

Actionable Digital Models

Combines graph models, ontologies, and near real-time data to create a navigable digital representation of the physical world.

2

Semantic Enrichment

Uses an ontology-driven approach to ensure data is understood, enriched with meaning, and given consistent semantics.

3

Connected Reality

Captures real-world relationships between machines, components, and processes, reflecting design, operation, and maintenance states.

Key Technical Capabilities



Ontology-Driven Modelling

Uses a formally structured vocabulary and set of relationships that define how asset types, behaviours, parameters, and events connect.



Semantic Enrichment

Ensures data is enriched with meaning, context, and consistent semantics.



Connected Structures

Captures relationships between machines, sensors, components, and processes in a connected structure.



Lifecycle Representation

Represents design, operation, and maintenance states, connecting intended behaviour with live performance.

Business Benefits

OPERATIONAL & STRATEGIC GAINS

- ✓ Improve understanding of how assets and processes interact.
- ✓ Establish a shared semantic layer across systems and teams.
- ✓ Support simulation, optimisation, and scenario modelling.
- ✓ Strengthen predictive maintenance and operational planning.
- ✓ Provide richer context for analytics, digital twins, and AI.

CUSTOMER & MARKET IMPACT

- ✓ Accelerates time to value for digital twin, simulation & AI initiatives.
- ✓ Improves shared understanding across teams and functions.
- ✓ Enhances decision-making & agility in complex operational environments.
- ✓ Builds future-ready foundations for advanced predictive capabilities.

Typical Use Cases



Complex Environment Modelling

Replaces disconnected data points with a semantic, graph-based structure that formally defines how machines, sensors, and processes relate to and connect with one another in the real world.



Performance Optimisation

Supports predictive capabilities by connecting intended system behaviours (design states) with live operational performance data.



Operational Planning

Enables scenario simulation and operational planning by providing a navigable digital representation of physical lifecycles, including design, operation, and maintenance states.



System Visibility

Upgrades superficial dashboards by combining an ontology-driven model with near real-time telemetry, explaining not just what is happening, but how the system behaves as a connected whole.



ISO 42001 AI Foundations

Provides the necessary structured vocabulary and rich operational context required to build shared semantic layers for advanced AI-driven reasoning and simulation.

PLATFORM POSITIONING

EdgeDataTwin is the semantic modelling layer of the EdgeMethods platform. By combining operational telemetry with graph-based ontologies, it creates actionable digital representations of physical assets, providing the necessary context for downstream simulation, optimisation, and AI-driven decision support.



edgeConnect



edgeGuardian



edgeLiberator



edgeDataTwin

EdgeDataTwin transforms operational telemetry into semantic, graph-based representations, enabling deeper understanding, simulation, and predictive optimisation of physical assets.