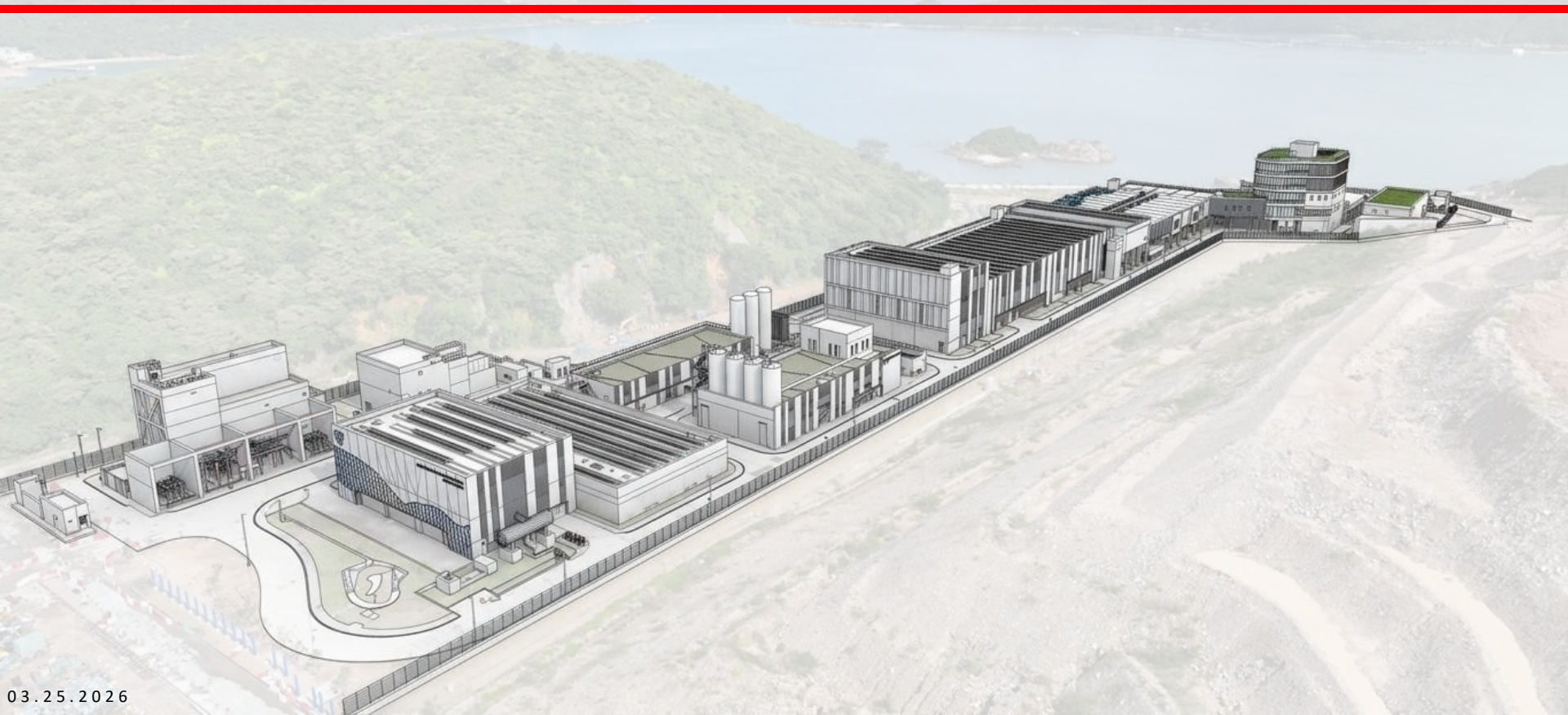


The background of the image is a deep purple with a network of glowing, intersecting lines in shades of cyan and magenta, creating a diamond-like pattern. The lines have a soft, ethereal glow.

AVEVAWORLD

ACCELERATE INDUSTRIAL INTELLIGENCE

TKO Desalination Plant
Digital Twin
THE BEST INDUSTRIAL TOOL



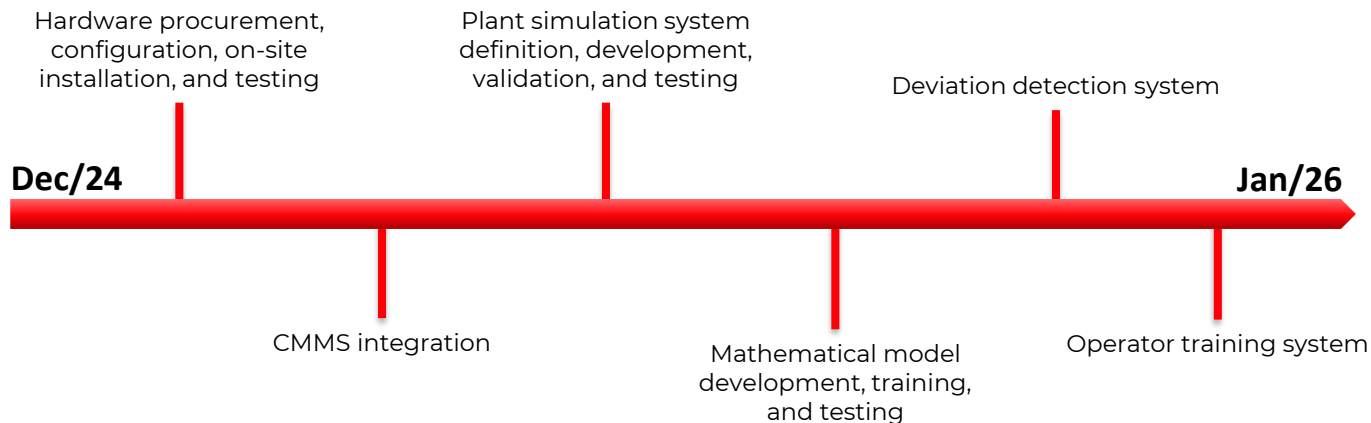
2025 Digital Twin Project

MISSION ACCOMPLISHED

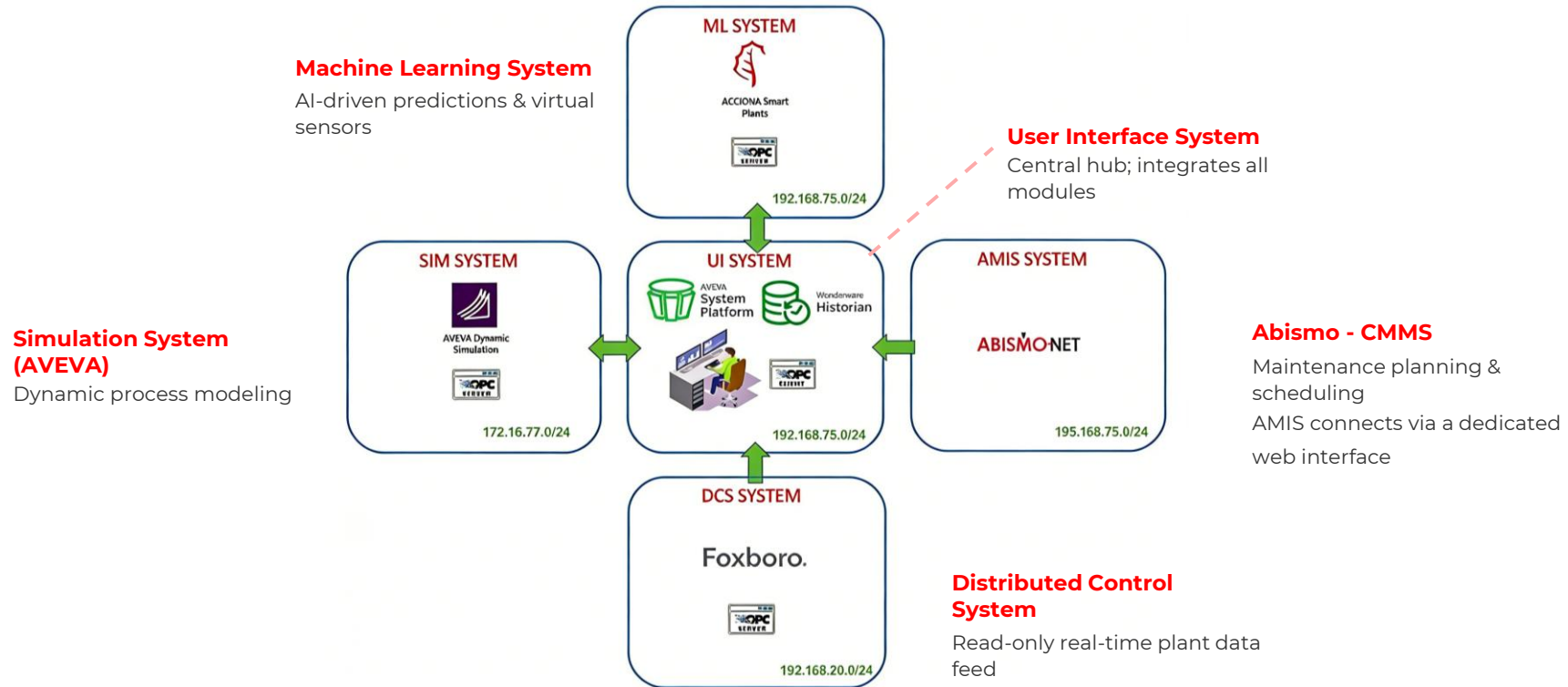
From the atom to the bit:
Leading in operational efficiency



Chronology of a Transformation

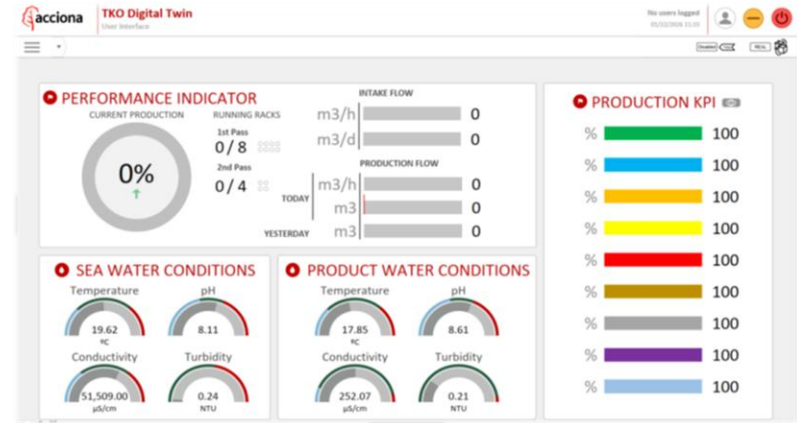
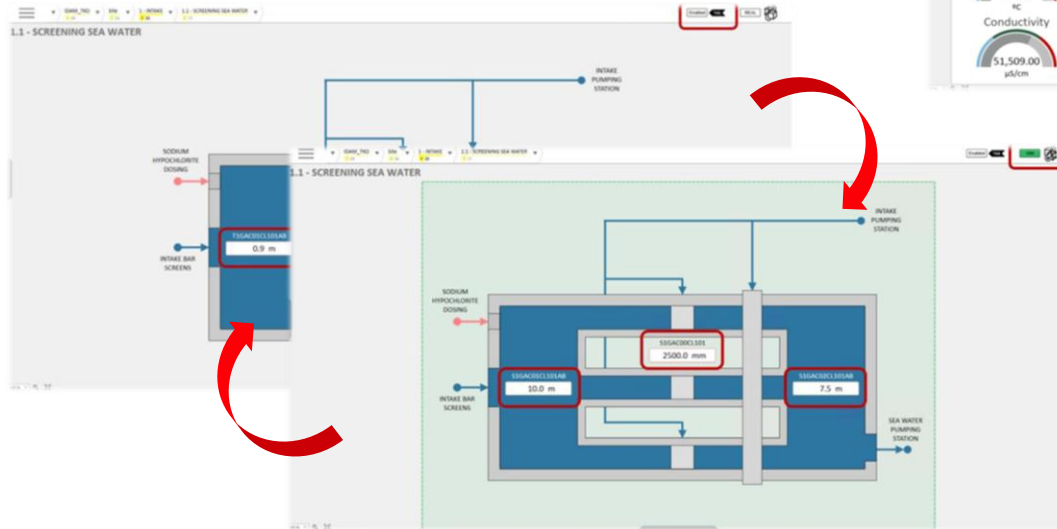


Our System, So Far



User Interface System

The User Interface System is the **primary interface and central hub** for the Digital Twin. It integrates all other systems, enabling interactions between the simulation and Machine Learning modules using real plant data. Built on **AVEVA System Platform**



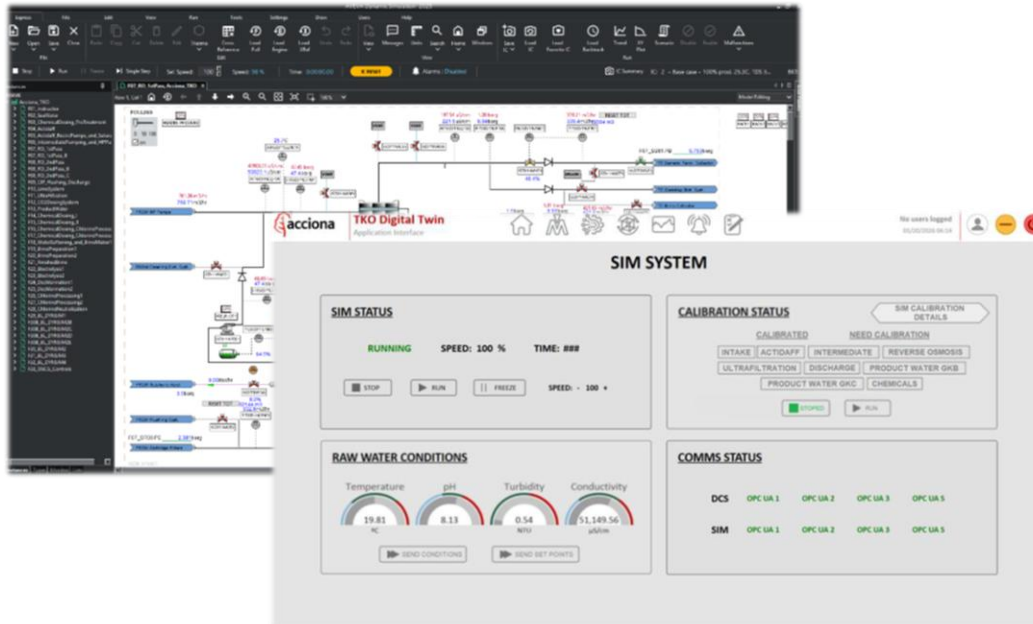
Machine Learning System

The ML System integrates **AI models and virtual sensors** into the DT UI. These models are trained using historical data and are continuously updated with real-time information. Their purpose is to provide insight into variables and behaviors that are difficult or impossible to measure directly.



Simulation System

AVEVA Dynamic Simulation is a high precision dynamic process simulator. It is a software tool that enables users to meet the dynamic challenges of operating our modern plant safely and profitably. ADS allow to Operations and Maintenance Team use the main following features:



- **Run alternative operating scenarios** to identify more efficient operating points.
- **Train new plant operators** without taking risks at plant operations or plant assets.
- **Make changes to the virtual DCS programming** to test all those changes before implementing them in the actual control system.

AMIS System

The AMIS system (Abismo) is a Computerized Maintenance Management System (CMMS) designed to optimize maintenance operations.

It features a web interface that integrates directly with the central **User Interface System**.

This integration **enables cross-functional verification between scheduled maintenance tasks, the real-time status of the physical plant, and the state of the simulation model**. By unifying these data streams, AMIS streamlines user workflows and enhances decision-making for maintenance planning.



And Now, What's Next?

We don't just replicate reality.
We want to build the future of
efficiency.



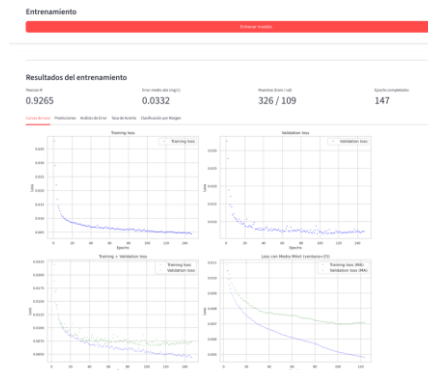
Model Evolution:

Toward Ultra-Precision

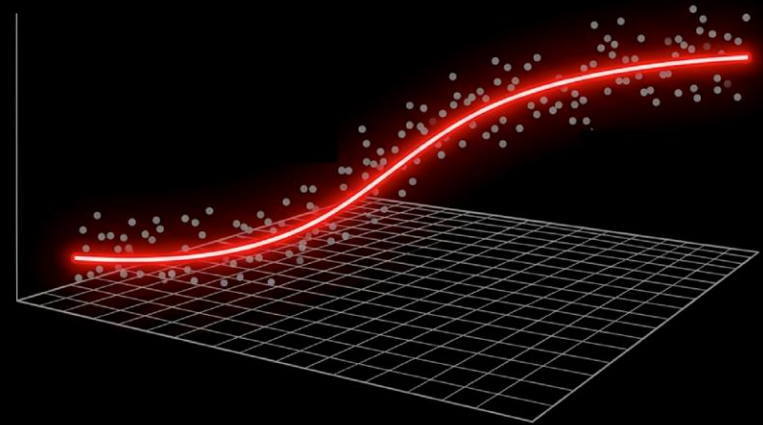
We update our models every week using process and laboratory data from the plant.

Now we want to **improve the model retraining system to make it faster and more efficient**, with a new user interface that makes it easier to use.

Let's explore new models together that will help us improve the efficiency of our processes.



The Cycle of Perfection: Reducing Errors



Next Goal:

The Energy Twin



We are going to **integrate all the plant energy data** inside the digital twin.

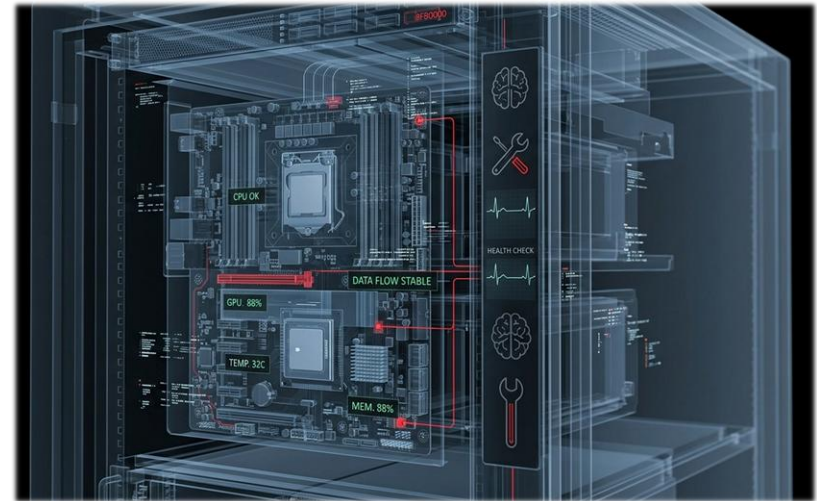
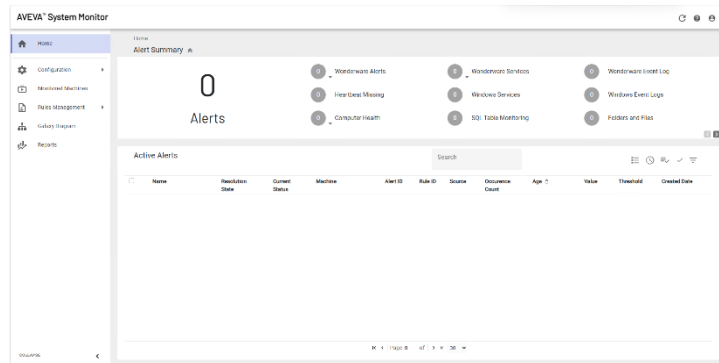
With all, we want to build new mathematical models that help us to find the running the point of maximum efficiency for large consumers.

Deep Health Check:

To further strengthen this environment, we are adding **AVEVA System Monitor** to enhance security and operational visibility.

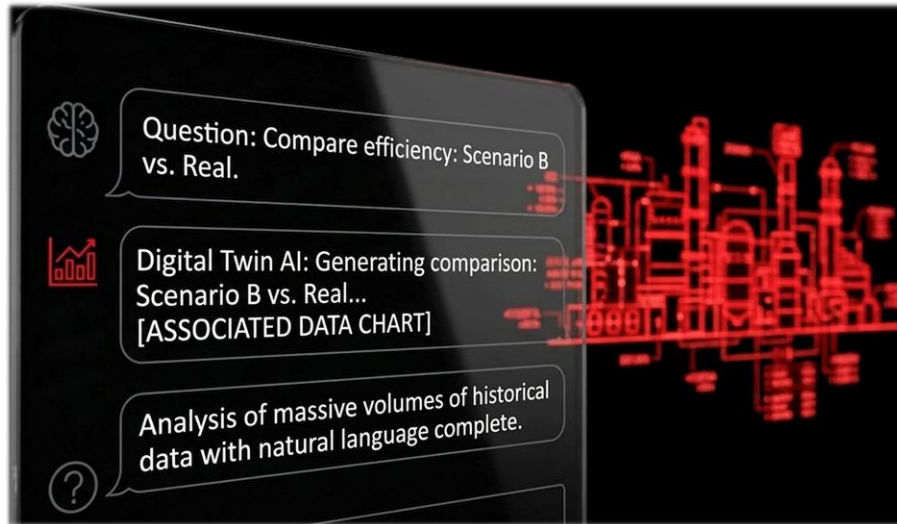
It delivers centralized, real-time monitoring of servers, services, and system resources, enabling early detection of anomalies or unauthorized changes and allowing proactive response before issues affect operations.

This addition increases the overall security, stability, and reliability of the digital twin.



The Revolution:

Generative AI: Ask the system. Get the answer

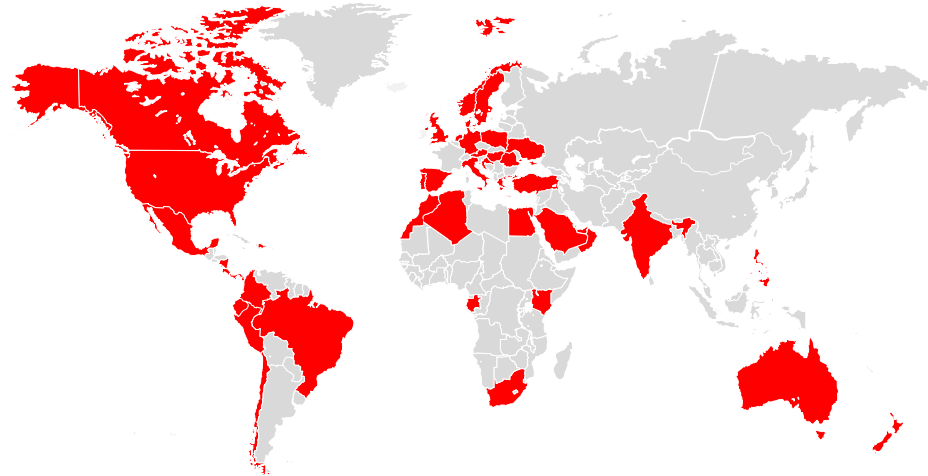


A locally deployed Generative AI Will be directly connected to historical databases to analyze “*What-If*” scenarios and automatically generate insight-driven reports.

No manual queries. No complex analysis.

Users interact with the Digital Twin using natural language, instantly extracting conclusions, comparisons, and results.

From simulation to decisión, at the speed of a question.



THANKS FOR YOUR ATTENTION