



**PROJECTS THAT TRANSFORM BUSINESSES:
BLUETAB USE CASE**

Predictive Intelligence for More Resilient Operations

What if you could predict production failures up to an hour before they happen and protect both output and revenue?

A leading cement producer in Latin America did exactly that. By implementing digital twins powered by generative time-series models, the company optimized clinker production with more than **90% prediction accuracy**.



Business Outcomes



OPERATIONS

- Achieved 90–95% prediction accuracy.
- Enabled continuous quality visibility with updates every 5 minutes.
- Improved the ability to prevent failures and unplanned downtime.
- Optimized thermal energy consumption and cooling.



SUSTAINABILITY

- Reduced CO₂ emissions.
- Improved energy efficiency across coal and natural gas consumption.



BUSINESS

- Helps prevent multimillion-dollar losses associated with quality issues.
- Supports faster, better-informed operational decisions.
- Planned expansion to additional plants in Honduras and Colombia.



Client Profile

A leading multinational cement and concrete producer with operations across Latin America, the United States, and Central America.



Implementation Time

10 MONTHS



Situation

CARTAGENA PLANT, COLOMBIA

- **Production capacity of 80–90 tonnes** of clinker per hour.
- **An energy-intensive process that heats tonnes of material to 1,200°C** within a compact production environment.
- **Advanced sensor infrastructure**, but with inconsistent data and information gaps.
- **Clinker accounts for 95%** of the final product.



Challenges

OPERATIONAL

- **Data quality:** inconsistencies and gaps in historical information.
- **Limited foresight:** no ability to anticipate failures across critical systems, including the reclaimer, raw mill, and kiln.
- **Operational lag:** control changes take time to affect the process, impacting material reduction through thermal energy.
- **Change management:** teams needed support to understand AI as a decision-support tool.

SUSTAINABILITY

- Target a **5%** reduction in specific energy consumption.
- Target a **16%** reduction in CO₂ emissions.



Solution

Digital twins powered by generative time-series models. Bluetab implemented a replicable generative model capable of predicting multiple variables simultaneously across industrial systems with reliable data, giving operators earlier visibility into quality and equipment behavior.

RECLAIMER

Accuracy:
>95%

Prediction horizon:
15 MIN ahead
using 30 minutes of context

- **Capability:** Anticipates motor failures

RAW MILL

Accuracy:
>95%

Prediction horizon:
30 MIN ahead
using 2 hours of context

- **Capability:** Optimizes kiln feed

KILN

Accuracy:
>90%

Prediction horizon:
1 HORA ahead
using 6 hours of context

- **Capability:** Predicts 51 variables simultaneously

QUALITY MODEL

Prediction frequency:
Every **5 MIN** VS Every **30 MIN**

- **Capability:** Real-time visibility

INTEGRATION

- Control-room displays with streaming predictions.

READY TO TURN YOUR NEXT CHALLENGE INTO A SUCCESS STORY? LET'S TALK.

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