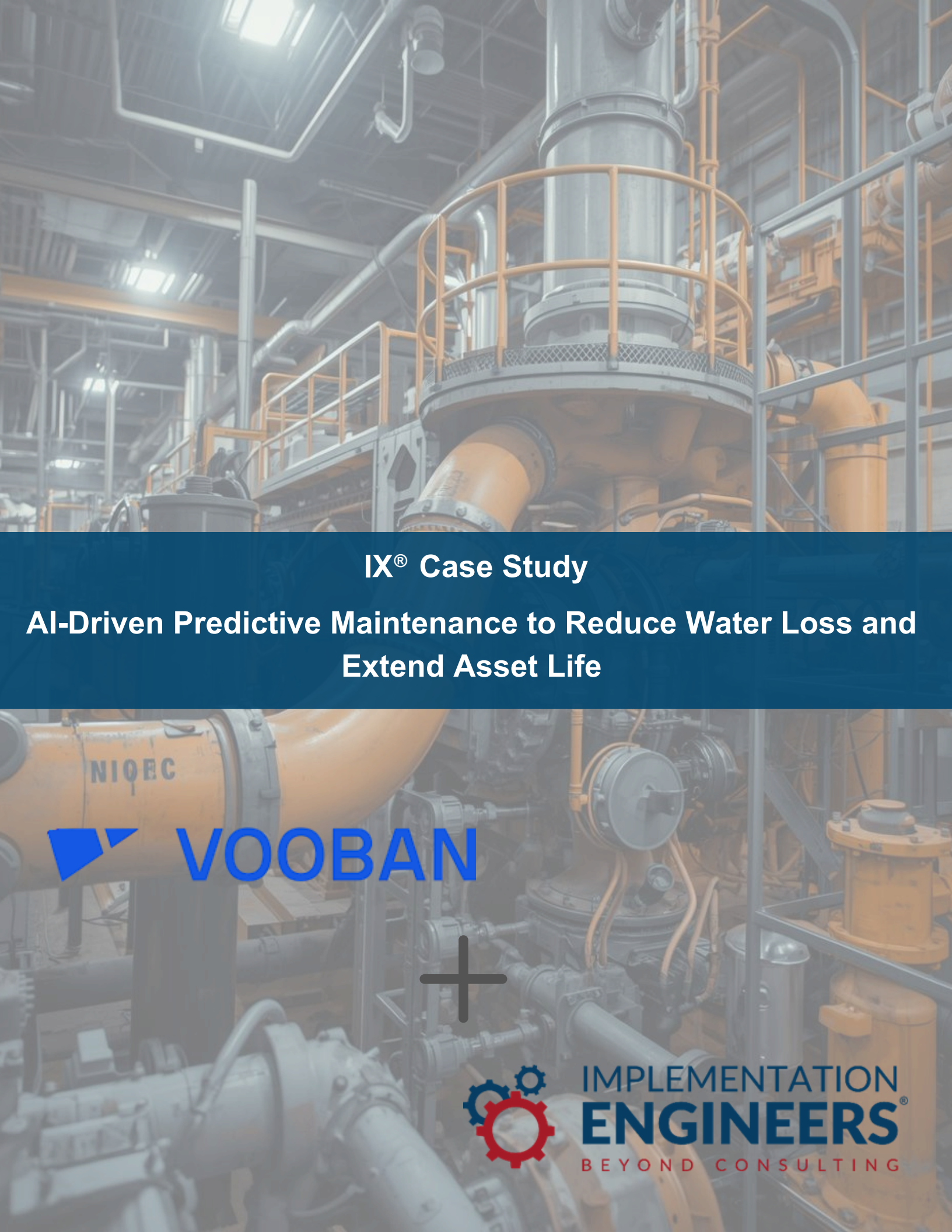




IX[®] Case Study

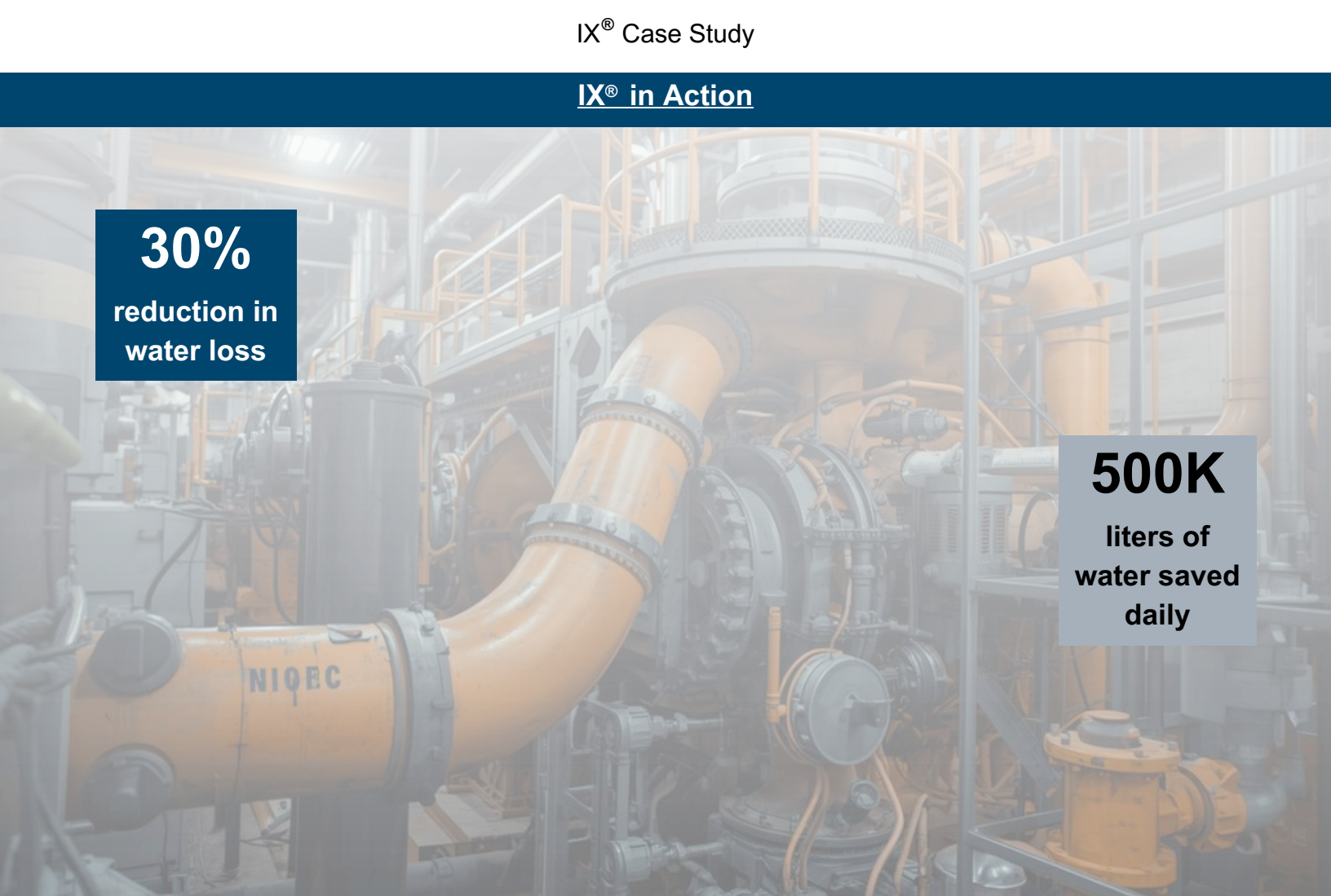
**AI-Driven Predictive Maintenance to Reduce Water Loss and
Extend Asset Life**



VOOBAN



**IMPLEMENTATION
ENGINEERS[®]**
BEYOND CONSULTING



30%

reduction in
water loss

500K

liters of
water saved
daily

The client is a long-established industrial manufacturer specializing in sealing systems for critical equipment such as pumps, valves, mixers, boilers, and process vessels across heavy industrial sectors including pulp and paper, metals, and resource processing. In these environments, water plays a vital role in cooling and lubrication — especially around rotating equipment where sealing performance directly affects operations, energy consumption, and regulatory exposure.

Over time, gasket performance naturally degrades due to extreme temperatures, pressure differentials, and mechanical wear. However, the condition of these seals was historically difficult to monitor in real time. Maintenance decisions were largely reactive or based on scheduled intervals rather than actual operating conditions. As a result, the company faced excessive water losses, premature part replacements, avoidable downtime, and equipment damage that was costly and difficult to predict.

Leadership engaged Implementation Engineers and Vooban to transform maintenance from a reactive function into a data-driven operating discipline — one capable of predicting failures before they happened and prescribing the right intervention at the right moment.

AI Implementation

The joint team deployed predictive and prescriptive AI models directly into operational environments — embedding intelligence inside industrial equipment rather than leaving it in dashboards.

Predictive Models for Gasket Health

- AI continuously evaluates gasket condition using real-time data on pressure, temperature, and operating profiles.

Prescriptive Maintenance System

- The system not only predicts failure but actively recommends actions — adjusting water pressure, tightening seals, or scheduling targeted inspection.

Real-Time Sensor Network

- Sensors embedded in rotating equipment feed performance data directly into AI models.

Edge-Based Monitoring Stations

- Measurement units deployed in the field deliver real-time insights to both operators and maintenance teams.

Unified Dashboard and Cloud Analytics

- Operational data is visible through dashboards accessible from anywhere via secure remote access.

Continuous Model Improvement

- Each operating cycle improves the system's ability to detect, predict, and prevent seal failures.

Scalable Architecture for Service Commercialization

- The solution evolved into a product offered to industrial customers as a commercial capability.

Results

The AI deployment delivered material economic, environmental, and operational impact:

Up to 30% Reduction in Water Loss

- Gasket leakage was significantly reduced across customer sites.

Over 500,000 Liters of Water Saved Per Facility Per Day

- Daily resource consumption dropped at scale without capital investment.

Lower Maintenance Costs

- Equipment life was extended by eliminating unnecessary replacements.

Reduced Unplanned Downtime

- Failures were predicted before causing production losses.

Improved Asset Reliability

- Operating conditions became controlled rather than reactive.

This Applies Anywhere That...

- Maintenance is reactive
- Asset health is invisible
- Water or energy is wasted
- Parts are replaced “just in case”
- Environmental performance is regulated
- Equipment conditions change faster than maintenance plans

Let's Turn Your Vision Into Results

Implementation Engineers and Vooban deliver together — turning strategy into operational reality through AI-enabled execution.

Our proven **Align-Design-Execute** framework ensures your strategy doesn't stall at planning. From aligning leadership around priorities, to designing AI-driven operating models, to executing change inside your operations, we work side-by-side to deliver results that scale.

Ready to Get Started?

Let's explore how we deliver together. Contact us today to schedule a conversation. Together, we'll chart the path from vision to execution.

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