

IX® Case Study

AI-Driven Demand Forecasting for Heating Equipment Manufacturing



VOOBAN



**IMPLEMENTATION
ENGINEERS®**
BEYOND CONSULTING

IX® in Action**85%**

forecast
accuracy
increased from
50%

35%

efficiency gain in
forecast process

93%

Short-Term
Forecast Accuracy
(30-Day)

A global manufacturer of residential heating products operates in a highly seasonal and demand-sensitive market, with products distributed across North America, Europe, and other international regions.

Demand for heating equipment is influenced by a wide range of external factors including:

- Weather patterns
- Housing starts and construction activity
- Macroeconomic conditions

Historically, production and inventory decisions were driven primarily by sales team forecasts, creating variability in planning accuracy and limiting the ability to scale predictability across the business.

The Challenge

The organization needed to significantly improve forecast accuracy to better align production, inventory, and demand.

Key challenges included:

- Heavy reliance on manual, experience-based sales forecasts
- Limited ability to incorporate external demand drivers into planning
- Difficulty identifying which variables truly influenced product demand
- Inconsistent forecast accuracy across product lines and time horizons

This resulted in:

- Misalignment between production and actual demand
- Inventory inefficiencies and risk of over- or under-production
- Limited confidence in forward-looking planning decisions

AI Implementation

1

AI-Powered Demand Forecasting Engine

A machine learning model was developed to generate accurate, data-driven sales forecasts across the product portfolio.

The model:

- Predicts both order volumes and transaction outcomes simultaneously
- Continuously retrains using the most recent internal data
- Integrates external data sources such as:
 - Weather patterns
 - Economic indicators (e.g., construction activity, unemployment)

Deployed in a cloud-based environment, the system runs automatically on a recurring basis to ensure forecasts remain current and relevant.

IX® in Action

2

Integrated Data and Visualization Layer

To embed forecasting into day-to-day decision-making:

- Data from multiple internal systems is consolidated into a centralized model input
- Forecast outputs are delivered through an interactive dashboard
- Business teams can compare:
 - AI-generated forecasts
 - Sales team forecasts

This creates transparency and drives adoption across planning and commercial teams.

3

Model Validation and Reliability

To ensure accuracy and trust:

- The model was trained on historical data and tested against actual outcomes
- Retrospective validation ensured predictions were reliable across multiple product lines
- Continuous updates improve performance over time

Results

Forecast Accuracy

- Increased annual forecast accuracy from ~50% to 85%
- Achieved 93% accuracy on short-term (1-month) forecasts, outperforming sales team predictions (~85%)

Operational Efficiency

- 35% efficiency gain in forecasting processes
- Automated forecasting across 240+ products

Business Impact

- Improved alignment between production and demand
- Reduced reliance on manual forecasting
- Increased confidence in planning and inventory decisions
- Stronger ability to respond to seasonal and market-driven demand shifts

What This Enables

By embedding AI into demand planning, manufacturers can:

- Replace subjective forecasting with data-driven predictions
- Incorporate external demand drivers into planning decisions
- Improve production stability and inventory positioning
- Scale forecasting across large product portfolios

This Applies Anywhere That...

This approach applies anywhere demand is influenced by external variables and variability, including:

- Seasonal or weather-driven products
- Construction and housing-linked demand
- Consumer goods with fluctuating demand patterns
- Complex product portfolios requiring scalable forecasting

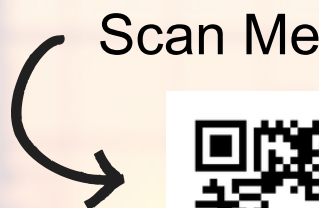
Let's Turn Your Vision Into Results

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.



Or visit www.bit.ly/ImplementationEngineersIntro

Learn More: www.implementation.com

